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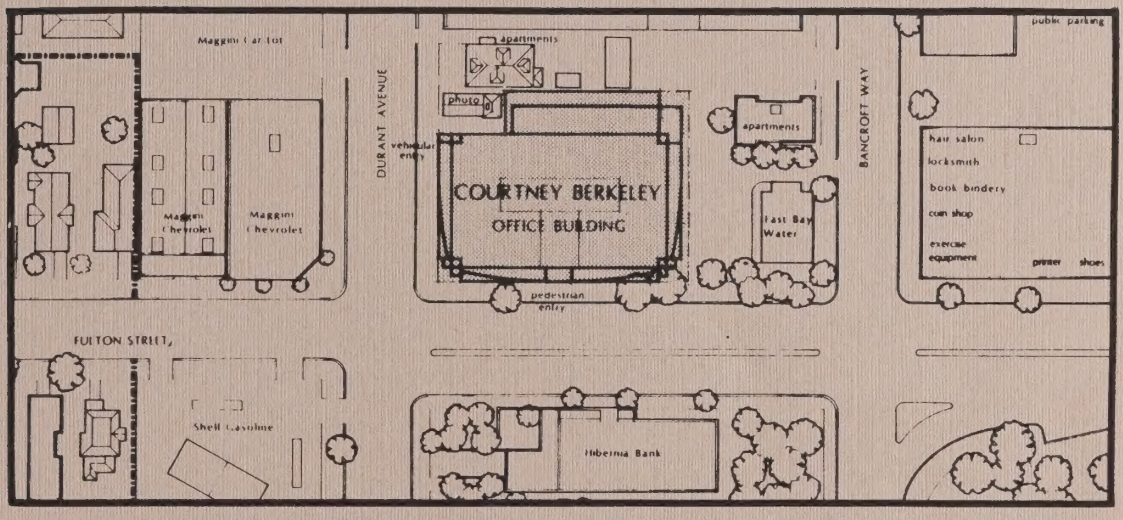
FOCUSED ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED COURTNEY BUILDING



CITY OF BERKELEY
DECEMBER 1985

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URBAN AND ENVIRONMENTAL PLANNERS

written comments by Jan. 6

Draft

FOCUSED ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED COURTNEY BUILDING

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I. INTRODUCTION

A. PURPOSE AND APPROACH

This report provides an assessment of the likely environmental consequences if construction of the proposed Courtney Building, a six-story 97,000-square-foot office-retail commercial structure, is permitted to occur on the northwest corner of Fulton Street and Durant Avenue in central Berkeley. The report is a focused EIR designed to fully inform city decision makers, other responsible agencies, and the community of the proposed action and potential consequences of its approval. The report also describes a combination of mitigation measures which would reduce or avoid identified significant impact potentials.

B. PROPOSED ACTION

William Courtney of Pleasanton proposes to construct a six-story 97,000-square-foot office and retail commercial building at 2308–18 Fulton Street in downtown Berkeley. The site is within the city's C-2 (Downtown Commercial) Zoning District. The applicant's intent is to lease the upper five floors (84,950 gross square feet) to office tenants, and lease the ground floor (12,050 gross square feet) to between two and four retail, commercial service, or office tenants. The project would also include 195 offstreet parking spaces in a two and one-half level, below-grade, attendant-operated parking garage. The site is currently being used as a privately operated public parking lot.

C. EIR SCOPE: SIGNIFICANT ISSUES AND CONCERNS

As provided for in California State EIR Guidelines, the focus of this report is limited to those specific issues identified as possibly significant by the City of Berkeley Planning Commission staff in their preliminary review and Initial Study of the proposal, and by concerned members of the community in a June 1985 EIR Scoping Session.* These issues and concerns picked as <u>most significant</u> are:

<u>1. Land Use, Urban Design, and Visual Factors</u>. The six-story commercial-office proposal for a site on the southeast edge of the downtown raises questions with respect to effects on the overall downtown land use pattern, relationship between the downtown and adjacent university and residential areas, and the compatibility between such a use and neighboring residential and commercial land uses.

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* A Scoping Session for the Courtney Building EIR was held at 7:30 pm on June 27, 1985, at the North Berkeley Senior Citizens' Center. Participants included members of the community-at-large, Planning Commission, and Board of Zoning Adjustments.

The proposal has also raised concerns with respect to the urban design impacts of a large-bulk building on this southeast corner of the downtown. Concerns include the effects of the project on the overall urban form of the downtown and on the character of this important southeastern downtown edge. Project impacts on views from approaching streets and Berkeley Hill viewpoints, and the project's potential shadow effects, are also community concerns.

2. Market Factors. The project has also raised market questions regarding the overall need for additional office space in the downtown, the relationship of project and other new downtown office space to future office development planned for the Berkeley waterfront, and the range of retail uses and commercial services that might conceivably locate in the proposed ground-level commercial space.

3. Employment, Housing, and Economic Development. Project employment and housing impacts, and its overall relationship to associated city housing and economic development objectives, are a principal concern.

4. Circulation and Parking. A number of circulation issues have been raised by the project, including its effects in combination with other recent and planned central area intensification, on the local street system and on local transit loads. Parking concerns include the adequacy and appropriateness of the proposed offstreet parking provisions, and the implications of the proposed attendant parking method. The project and its proposed parking garage have also raised questions regarding possible alternative transportation management measures in lieu of conventional parking provisions, and possibilities for shared parking arrangements.

5. Municipal Service and Fiscal Implications. The project's effects on municipal service demands, and on fire protection and police service needs in particular, are an important concern. Related impacts on annual municipal expenditures and revenues are also a concern.

6. Noise. Project construction period and long-term noise impacts on surrounding land uses and nearby neighborhoods are another concern.

7. Air Quality. Project construction period and long-term air quality effects on its environs also require evaluation.

8. Alternatives to the Proposed Action. The proposed six-story office commercial use has also raised questions with respect to possible alternative uses of this important C-2 site on the edge of Berkeley's downtown. Alternatives to the proposed action which will be evaluated in this report include a **reduced intensity** office commercial scheme (five rather than six stories), an **increased intensity** office-commercial scheme consistent with the maximum building intensity allowed in the C-2 zone, and a **multi-use** alternative combining residential with commercial uses in a single structure in response to city central area housing and mixed-use goals. This evaluation of project alternatives also considers the CEQA-required "no-project" alternative, i.e., deferral of site intensification to some future time.

II. SUMMARY OF IMPACTS AND MITIGATIONS

A brief summary of the findings and recommendations of this focused environmental impact report is outlined below:

A. LAND USE, URBAN DESIGN, AND VISUAL FACTORS

1. Land Use Impacts

Compatibility and Nearby Land Uses

- The project would result in a number of adverse impacts on the adjacent photo studio and two neighboring apartment buildings (13 total units), including incongruities in building scale, view blockages, noise and air quality impacts (garage access drive and exhaust duct), and year-round shadow impacts.
- The project rear wall would be 18 inches from the neighboring 5-unit* apartment house on Durant, shielding two sets of apartment windows.
- The project would be generally compatible with other surrounding land uses, including the Pacific Telephone building, EBMUD building, Hibernia Bank building, Maggini Chevrolet complex, California First Bank building, and IOOF building.

Zoning Consistency

- The project would be consistent with the provisions and intent of the applicable C-2: Downtown Commercial zoning district.
- Under current **interim C-2 zoning regulations,** a Use Permit and associated design review procedures would be required.

Impacts on Local Land Use Pattern

- The project would provide a key "infill" element. Conversion of the existing parking lot to a 6-story office building would raise the development intensity of the block (average floor area ratio) to a level more consistent with other downtown blocks along Oxford between University and Bancroft.
- The project would contribute to the growing role of office development as the predominant downtown land use.

"Spillover" Effects

- The project, in combination with other local factors, could result in increased pressures for similar intensification of other "underutilized" properties to the north along Oxford, and for "adaptive" use of the landmark Howard Automobile Company (Maggini Chevrolet) on the south side of Durant.

Relationship to Evolving Downtown Plan

- The project appears consistent with evolving (preliminary) Downtown Plan goals regarding reinforcement of the downtown as the city's dominant commercial center; encouraging retail, restaurants, and other commercial service uses on the ground floor; and providing a mix of mutually supportive uses in the downtown.

2. Land Use Mitigation Measures

Land Use Conflicts

- Conflicts with the adjacent photo studio and 5-unit apartment building* on Durant could be partially reduced by eliminating or redesigning the project's garage exhaust duct and increasing the wall separation between the apartment building and the project for better light and air.

"Spillover" Effects

- Project-induced pressures for surrounding intensification would increase the need for city adoption of the proposed rezoning of areas south and east of the site from C-2 to C-1.

* Four of these five units are currently unoccupied.

3. Urban Design and Visual Factors

Relationship to Adjacent Structures

- Articulation of the project building mass with strong horizontal elements and varying setbacks to create a two-story "base" and four-story "body" would provide desirable visual relationships to major surrounding structures, including the nearby Pacific Telephone, Maggini Chevrolet, California First Bank, and IOOF buildings.
- The project size, although less than the maximum building envelope allowed in the C-2 District, would be conspicuously out of scale with the adjacent photo studio and 5-unit apartment building on Durant. The project, together with the existing Telephone building, would enclose and block views and solar access to these two neighboring buildings.
- To a much lesser degree, the 8-unit apartment building on Bancroft would also appear stunted and semi-enclosed by the combination of the project and existing Telephone building.
- The project height, mass, and "zero" setbacks along Durant and Fulton would correspond closely to other principal building frontages in the area, reinforcing the southeast edge of the downtown (as recommended in the West Side Study prepared for the university in 1983).
- The project would also reduce the adverse visual impact of the Telephone building's blank east wall.

Streetscape Impacts

- The project would increase pedestrian activity and the overall sense of viability at the southeast corner of the downtown. Project street trees would enhance the Fulton/Durant corner and strengthen perception of the downtown edge.
- Project ground-level architectural details would provide visual interest for pedestrians.

Views from Approaching Streets

- The most noticeable project impact on views from approaching streets would be on the northbound view towards the downtown from Fulton at Channing, where the project's scale would create a strong and abrupt identification of the downtown edge.

Height and Bulk

- The project height (77.5 feet--6 stories) and floor area ratio (4.67) would be less than the maximums currently allowed in the C-2 District (max. ht. = 100 feet or 10 stories; max. F.A.R. = 6.0). Most buildings in downtown Berkeley are between two and five stories; there are two highrises (10 stories or more) and numerous midrise structures (5 to 10 stories).
- The project would have a distinct "infilling effect," visually reinforcing the Fulton/Durant edge of the downtown. Its height and bulk, relative to nearby buildings and adjacent street widths, would create a district landmark element defining a key downtown edge and entrypoint--the "corner" of the downtown.

Shadow Impacts

- In the summer months, the neighboring photo studio and 5-unit apartment building on Durant would be totally shaded by the project until midday (and by the Telephone building in the afternoon).
- A portion of the east wall of the 5-unit apartment* which is now open to the project site parking lot would be totally blocked by the new building; two of the apartment units would be affected.
- In the winter months, the project would shade the south and east walls of the nearby 8-unit apartment building on Bancroft; six of those units would be affected.

4. Mitigation of Design/Visual Impacts

Pedestrian Provisions

- Incorporation of artwork and/or a sitting area into project's exterior scheme would further improve the pedestrian environment.

Street Trees

- Through developer/city cooperation, project street trees could be the initial phase of a coordinated landscaping treatment extending up Oxford to Hearst, and down Durant to Shattuck.

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* Four of the five apartment units are currently unoccupied.

Shadow Impacts

- Solar impacts on the adjacent 5-unit apartment building on Durant could be reduced by increasing project setbacks. An increase in the wall separation between the project and the adjacent 5-unit apartment building from 18 inches to 5 feet would reduce the severity of the project impact on the livability of the two affected apartment units by providing space to capture indirect light and air.

B. MARKET FACTORS

Office Vacancy Rate

- Berkeley's downtown office vacancy rate in June 1985 was around 5 percent, down from around 7 percent in 1984 and much lower than other East Bay office locations.

Office Expansion Trends

- The downtown has been experiencing an office expansion rate of between 140,000 and 150,000 square feet per year over the past 3 years, a healthy rate for a community central core of Berkeley's size.
- On the other hand, the projected downtown office expansion rate is small in comparison to trends in other East Bay locations and is not indicative of a transformation of the downtown from its current community center role into a major, regional-scale commercial center.

Project Share

- The project is expected to capture a 15 to 20 percent share of the downtown's projected new office space absorption over the next 3 or 4 years.

Project Market Advantages

- The project would be one of the few modern buildings in the Berkeley downtown with adequate space for the large tenant. With the exception of the Golden Bear project (118,000 square feet of office), the Courtney Building office components would be larger than those of other downtown buildings recently approved or under construction.

Other Downtown Effects

- Local increases in worker population due to the project and other office developments would strengthen the downtown retail and commercial service sector.

C. EMPLOYMENT AND HOUSING

1. Employment Impacts

Primary Employment

- The Courtney Building can be expected to accommodate 283 office employees, 27 retail/commercial employees, and 4 garage employees for a total of **314 workers**.
- Around half of these 314 workers would probably be in the professional, technical, managerial, and administrative categories, a third would probably be clerical, and the remaining 17 percent would hold sales, commercial services, and maintenance jobs.

Multiplier Effects

- Secondary employment impacts resulting from project-related growth in local income and support activities (business and personal services) could result in a total project employment impact of around **500 to 600 new Berkeley jobs**, primarily in the private sector.

Jobs to Berkeley Residents

- If these 500 to 600 new job holders follow current city employee place-of-residence patterns, around 20 to 30 percent, or between 100 and 180, would be Berkeley residents.

Relationship to City Economic Goals/Policies

- Project approval would be generally consistent with city Economic Development Plan goals to revitalize the local economy, promote a strong industrial base, increase private investment activity, retain existing businesses, attract new and viable businesses, build confidence within the business community, and thereby increase local employment opportunities and fiscal health.

Impacts on the Underemployed and Unemployed

- In order to ensure that some portion of project permanent and construction period jobs were made available to Berkeley residents in need, a **targeted jobs** program would be necessary (see Mitigation Measures).

Construction Jobs

- Project construction is expected to take approximately a year and provide around 70 construction jobs.

2. Employment Impact Mitigation Measures

Targeted Jobs Program

- Although the report estimates that 20 to 30 percent of project primary and secondary jobs would go to Berkeley residents, a "targeted jobs program" would be necessary to assure these results or to increase the allocation. Section IV.C.1.c of this report describes a number of specific measures to achieve participation in project-related job creation by targeted groups, including Berkeley residents in general and Berkeley underemployed and unemployed residents in particular.

3. Population and Housing Impacts

Project-Related Increases in Local Housing Demands

- It is estimated based upon current employee-residence patterns in the city that, of the 100 to 180 holders of project-related new jobs who can be expected to reside in Berkeley, between 60 and 115, under normal circumstances, could be expected to be new Berkeley residents who, in turn, would create a demand for 50 to 95 additional Berkeley housing units.

- These added project-related housing demands, in combination with other anticipated demand increases, would exacerbate current housing availability and affordability problems in Berkeley.

Loss of Potential Housing Opportunity

- The C-2 zone is intended to provide for a variety of central area uses from general commercial to residential. Construction of the proposed office-commercial structure would preclude future use of the site for housing.

- A midrise residential project at this location would, if marketable, provide housing for upper income buyers and/or tenants, and would have little direct impact on the availability of affordable housing in Berkeley.

4. Mitigation Measures

Housing Impacts

- A development agreement could be negotiated between the developer and city stating housing impact mitigation measures to be taken by the developer as a condition of city support for the project. Developer measures could include certain specific actions, commitment of certain resources, or contribution of a specific in-lieu fee towards implementation of the citywide housing improvement program described in the city's Housing Element.

D. CIRCULATION AND PARKING IMPACTS

1. Traffic Impacts

Local Intersections

- Projected 1990 performance ratings at three downtown intersections would approach or exceed "acceptable levels of service" without the project, due to cumulative development. These include the intersections of Shattuck and University (service level E), Shattuck and Durant(service level E), and Telegraph and Durant (service level D).

- Projected performance ratings at these three intersections with the project would not be noticeably different.

Regional Access Points

- Traffic increases from cumulative downtown growth through 1990 are also expected to have a noticeable impact on four regional access facilities: the Ashby/I-80 interchange and Ashby corridor, the University/I-80 interchange, and the Tunnel Road connection to State Route 24 and I-580. The project would be responsible for between 1 and 3 percent of these traffic increases.

AC Transit Impacts

- The Courtney Building would generate an estimated 65 additional peak-hour riders. This increase alone would have minimal effects on projected peak direction transit loads. The project alone would not warrant any special transit provisions (new stops or routings).

- Nevertheless, given current schedules, peak-period bus overloading could be anticipated on the 37, 43, and 51 lines by 1990 due to cumulative downtown development, with or without the project. AC Transit would respond to such overloading through equipment reassignment and schedule revision.

BART Impacts

- Projected 1990 peak-period, peak-direction passenger loading on BART is expected to decline (improve) due to a planned 71 percent increase in system capacity. The difference in peak-period passenger loading with the project would be negligible.

2. Parking Impacts

Spaces Lost

- The project would displace an existing 70-stall fee lot now serving the area.

Project Provisions

- The project would include a 195-stall underground, attendant-controlled parking garage to meet its own parking needs (the 195-stall total slightly exceeds the city's zoning requirement).
- The project attendant-controlled parking scheme includes a number of tandem spaces. In the past, the city has disallowed tandem parking spaces in determining compliance with city parking requirements.
- Demand for Courtney Building garage spaces could be limited by comparatively high parking charges or by perceived shortcomings of attendant parking. As a result, project parking demands could encroach of on existing neighborhood parking.
- To the extent that measures by building management are successful in keeping the garage full (competitive fees, assigned spaces, validation, etc.), project parking encroachment impacts could be reduced or eliminated.

Estimated Parking Demand

- Based on standard office building parking ratios, the estimated project parking demand would be 230 spaces, for a project parking shortfall of 35 spaces (230 - 195). Ridesharing and transit usage patterns found elsewhere in the Berkeley central area could reduce or eliminate this shortfall.
- The project parking garage could also be used to relieve off-peak demand "surges" related to Edwards Field and other offsite weeknight or weekend activities.

Bicycle Parking

- The garage scheme includes 50 bicycle spaces, slightly exceeding city requirements. However, the proposed location of the spaces may be inconvenient for retail customers and other visitors, and presents potentially hazardous conflicts between bicycle, pedestrian, and vehicular movements in the garage.

Loading

- The internal loading bay arrangement could result in blockage of entering auto traffic.

Driveway

- The project driveway location on Durant 95 feet from the Fulton intersection should function satisfactorily, since Durant is a one-way street with three travel lanes and moderate traffic volumes.

Attendant Parking

- The proposed garage layout would be adequate for attendant operation only. Attendant parking allows for a 10 to 15 percent increase in vehicles stored per square foot over self-parking.

Transportation Services Fee

- The city's normal Transportation Services Fee would amount to approximately $194,000 for this project.

3. Traffic and Parking Mitigation Measures

Street System

- The city should consider a comprehensive central area street improvement program financed on a fair-share basis by fees collected from all future developments contributing to these needs, including the project. Various contribution approaches and formulas are described in Section IV.D.3.b of this report.

TSM Program

- The applicant should submit a description of a comprehensive Transportation System Management program to reduce project contributions to local peak-hour vehicular traffic. A number of TSM measures are recommended in this report for inclusion in such a program.

Parking Program

- The applicant should submit for city approval a parking program description prepared by a qualified parking consultant describing how full utilization of the facility would be achieved, and how adequate attendant parking would be assured over the long term. (The Police Department believes there should be at least two attendants on duty during garage operating hours.)

Bicycle Parking
- Some percentage of the bicycle parking should be more conveniently located to serve building retail customers, business patrons, clients, and other visitors.

Other Measures
- Other measures are described in section IV.D.3.b of this report to improve project bicycle provisions, loading provisions, driveway operation, and so on, plus construction-period parking recommendations.

E. MUNICIPAL SERVICE AND FISCAL IMPLICATIONS

1. Municipal Services

Police and Fire
- The cumulative impact of all eight new buildings under construction or planned in the downtown (including the project) would result in the need for at least one additional uniformed police officer and fire fighter, plus associated support costs.
- The project would also warrant installation of a new fire hydrant, possible improvements to the Durant water main, additional fire-fighter training, and certain additional fire-fighting equipment (self-contained breathing apparatus, compressor, training equipment).

Water
- Project domestic water demands could be met by existing mains with no noticeable impact on the EBMUD system.
- Project fire flow demands could exceed the capacity of existing mains.

Sewer
- Additional wastewater from the project could bring flows in the existing 6-inch collection line near capacity.

Storm Drainage
- The existing storm drainage system would be adequate to handle runoff from the project (not substantially different from existing runoff rate).

2. Municipal Services Impact Mitigation

Fire
- Install a Fire Department approved automatic sprinkler system, fire alarm system, smoke-control system, and breakout windows.
- Meet Fire Department recommended design criteria for elevator lobbies , corridors, stairways, water main supply, fire apparatus access, and evacuation routes.
- Install a new fire hydrant at the corner of Durant and Fulton.
- Provide a designated public safety coordinator for the building.
- Provide funds toward purchase of specific fire protection items needed for the proposed building type (items listed in this report).

Water
- If project fire flow demands exceed capacity, the developer would be responsible for system improvements necessary to provide required flow (new water line, etc.).

Sewer
- If actual project demands cause the capacity of the existing sewer line to be exceeded, the developer would be responsible for necessary system improvements (new sewer line).

General
- The city and EBMUD would charge various permit, engineering, connection, and user fees which together would cover project-related hookup and ongoing service costs for water, sewer, and storm drainage.

3. Fiscal Impacts

One-Time Costs and Revenues
- Project one-time revenues from building permit, plan check, and transportation services fees would amount to around $380,000. This report assumes that this revenue would be used to cover general government costs for project review (planning, building inspections, engineering, public hearings, general administration, etc.).

Ongoing Costs
- This report estimates that total added General Fund expenditures due to project-related municipal service needs would be around $70,000 per year in the initial years of full project operation.

Ongoing Revenues

- General Fund revenues from the project (property tax, sales tax, utility users tax, real property transfer tax, business license fees, etc.) would be around $160,000 per year in the initial years of full operation.

Long-Term Cost-Revenue Outlook

- Although the property tax portion of the project revenue total would decline over time due to Proposition 13 effects, this report indicates that project-related annual revenues to the city's General Fund would substantially exceed project-related expenditures over the long term.

F. NOISE

1. Project Impacts

Offsite Traffic

- Projected 1985-to-1990 increases in traffic noise levels along the sensitive Fulton residential corridor south of the project and along Durant east of the project are not expected to be detectable, with or without the project.

Exhaust Duct

- The project garage exhaust duct would be near the existing 8-unit apartment building on Bancroft (see Figure 39). Ventilation equipment noise at this point could create a significant annoyance and nuisance for the three nearest apartment units.

Garage Access

- Noise from vehicles entering and leaving the garage via the proposed driveway on Durant could periodically interfere with quiet activities in the frontage spaces of the nearby photo studio (25 feet from driveway) and 5-unit apartment building (45 feet away).

Construction Noise

- Project construction activities (onsite equipment) would create intermittent interior noise levels in the neighboring photo studio and the 6 or 7 apartment units which face the site which could interfere with normal conversation and other quiet daytime activities. Construction noise levels could also exceed city construction period noise standards.

- Pile-driving, usually the greatest source of construction noise and vibration, is not anticipated for this project.

Project Noise Compatibility

- Conventional midrise construction with sealed windows and fresh air supply systems or air conditioning would suffice in abating traffic noise intrusion, given the projected traffic increases along Fulton and Durant.

2. Noise Impact Mitigation

Exhaust Duct

- The applicant should submit for city approval an acoustical report prepared by a qualified acoustical consultant adequately describing long-term noise abatement measures included in the project design, with special consideration given to the garage exhaust duct.

Project Driveway

- Driveway noise impacts on neighboring uses could be mitigated by relocating the driveway. However, a location farther to the east on Durant (away from the neighboring uses) would have only a slight noise reduction effect, while creating significant traffic problems (too close to the Fulton intersection), and relocation of the driveway to Fulton would also be highly undesirable from a traffic standpoint.

Construction Period

- The developer would be expected to meet construction period noise level requirements set forth in the city's Community Noise Ordinance.

- Properly designed construction safety barriers could reduce line-of-sight noise levels by 15 dB.

- As the site is excavated below ground level, side walls of the excavation would create a noise barrier effect (noisy construction equipment--compressors, etc.--could be located in the excavation).

F. AIR QUALITY

1. Project Impacts

Regional Effects

- Computations in this report using California Air Resources Board formulas indicate that project-related emissions would not cause a measurable degradation of regional air quality.

Exhaust Duct

- The proposed garage exhaust duct is close in vertical and horizontal distance to the two nearby apartment buildings and could create significant interior air quality impacts on these two sensitive uses (focused carbon monoxide, hydrocarbon, and odor emissions).

Other Local Increases

- Computations in this report using BAAQMD calculation procedures indicate that 1995 carbon monoxide concentrations along streets in the project vicinity, including various impacted intersections, would remain in compliance with state and federal standards, with or without the project.

Construction Period

- Project construction activities could generate hydrocarbon, odor emissions, and windblown dusts which could be a significant source of annoyance and nuisance for neighboring residents and businesses.

2. Air Quality Impact Mitigation Measures

Exhaust Duct

- The applicant should submit for city approval a ventilation report prepared by a qualified air conditioning engineer adequately describing building mechanical system features to ensure that adverse air quality impacts on the three neighboring structures will be adequately mitigated.

Other Local Increases

- Transportation system management (TSM) and TRiP program measures discussed in section IV.D.3.b of this report are intended to reduce the number of automobiles driven to and from the project and lessen local roadway congestion.

Construction Period

- This report also lists a number of construction period measures for control and reduction of dust, suspended particulate, and hydrocarbon emissions.

G. ALTERNATIVES TO THE PROPOSED ACTION

Reduced-Intensity Alternative

- An office-commercial scheme similar to the proposed action, but at a reduced height and square footage, would have similar land use impacts on neighboring land uses. The reduced height would reduce the building's market "identity" and its ability to accommodate "large tenants." The size reduction would result in corresponding reductions in new jobs created, and, in turn, reduced impacts on local housing availability and affordability. Traffic and transit impact reductions associated with the reduced scheme would not be significant. The General Fund revenues generated by this alternative would still exceed related municipal expenditures by a substantial amount. Noise and air quality impacts would be similar to the proposed action (a reduction of building size would not in itself eliminate the need for an underground parking garage exhaust duct).

Residential-Commercial Alternative

- A residential-commercial mixed-use scheme is evaluated in this report as a possible alternative to the proposed office-commercial mixed-use scheme, in response to city goals to expand its housing stock citywide and to improve downtown housing opportunities. The report examines a mixed-use scheme with retail-commercial on the ground floor and all residential above the ground floor. (The report concludes for a number of reasons that a multi-use scheme incorporating substantial residential and office uses above the ground floor is too remote and speculative for consideration as a reasonable alternative.)

- The residential scheme would have land use impacts on neighboring land uses similar to the proposed action. The market feasibility of a high-density (midrise) residential scheme with ground floor commercial is questionable. Unlike the proposed action, the scheme would not generate substantial new employment. Assuming a ground-level commercial use and the same building height as the proposed action (6 stories), compliance with the city's R-5 zoning regulations would yield approximately 50 one- and two-bedroom units. Report conclusions regarding the cost implications of the 50-unit mixed-use scheme and six variations on that scheme (ranging from a 6-story, 34-unit version to a 9-story, 96-unit version) are:

- The range of selling prices among the various schemes (one- and two-bedroom units) would be between $153,000 and $180,000.

- Since the project site was purchased at a price typical of C-2 property in Berkeley (rather than an R-5 price), home selling prices would be $5,000 to $6,000 higher per unit than for a comparable R-5 midrise condominium project currently proposed at Oxford and Hearst.

- A more intensive 9-story 96-unit scheme (i.e., maximum C-2 height limits) could offer units at $9,000 to $10,000 less than a project constructed to R-5 standards (6 stories).

- The addition of ground-floor commercial to a midrise residential project would not significantly reduce residential unit selling prices.

- The concept of "internal subsidy" (i.e., using a portion of the income from the commercial component to reduce residential prices) would actually result in an ongoing loss to the project, unless the commercial use was allowed as a "bonus" (i.e., as an added story or stories beyond what is normally allowed under city R-5 regulations).

- The 50-unit residential-commercial scheme would have a comparatively reduced impact on local vehicular traffic, a slightly reduced transit impact, a reduced Transportation Service Fee ($194,000 for the proposed action; $24,000 for the residential scheme), a significantly increased local parking impact, a less positive annual municipal cost-revenue effect (a project-related "surplus" of about $16,000 per year, as compared to around $91,000 per year for the proposed action), and more significant noise compatibility and air quality impacts (for the new residential units closest to Fulton and Durant).

Consistency with the City's Economic Development Plan

- The various office commercial schemes examined in this report would be consistent with city Economic Development Plan goals to increase local employment, revitalize the local economy, promote a strong industrial base, increase private investment activity, retain existing businesses, attract new and viable businesses, and build confidence within the business community. The various residential-commercial schemes examined in this report, since they would require denial of a conforming, business-oriented use of a downtown site recently purchased based on its C-2 zoning, would be inconsistent with the city's Economic Development Plan goal to overcome perceptions in the business community of "regulatory vagueness and uncertainty" and a "negative business climate" in Berkeley.

III. PROJECT DESCRIPTION

A. EXISTING SETTING

1. Regional Location

As illustrated in Figure 1, the project is located in the city of Berkeley, approximately 9½ miles east of San Francisco. The cities of El Cerrito and Richmond are to the north, Oakland and Alameda to the south, and Orinda to the east. Interstate 80 (the Eastshore Freeway) provides an interregional link from Berkeley south to San Jose and northeast to Richmond and Sacramento. State Route 24 provides an easterly connection to central Contra Costa County (Orinda, Lafayette, Walnut Creek, Concord, etc.).

2. Local Setting

Figures 2, 3, and 4 illustrate the project's local setting. The site is on the southeast corner of a central area block bounded by Fulton Street, Durant Avenue, Shattuck Avenue, and Bancroft Way. The site is also at the southeast end of the central business district, and is across from the southwest corner of the University of California campus (see Figure 2). It is one block east of Shattuck Avenue, the city's main downtown thoroughfare. The corner site has frontage on Fulton Street, a two-way, four-lane arterial, and Durant Avenue, a one-way, four-lane, eastbound street. Fulton Street becomes a residential corridor one block south of the site.

Neighboring properties immediately west of the site on Durant Avenue include a small, residential-scale photo studio and a 5-unit apartment building. Immediately to the north are the local office of the East Bay Municipal Utility District (EBMUD) at the intersection of Fulton and Bancroft, and an 8-unit apartment building fronting on Bancroft Way. Other significant buildings near the site are the one-story Hibernia Bank on the opposite side of Fulton Street, the one-story Maggini Chevrolet complex on the opposite side of Durant Avenue, the four-story Pacific Telephone Building to the west of the project which visually dominates the block, and the four-story IOOF Building to the north on Fulton at Bancroft.

3. Project Site Characteristics

The 0.48-acre project site is currently used as a public parking lot. The asphalt-paved lot is striped for 76 parking spaces. The site slopes gently downward at a 4 percent grade from Fulton Street where its average elevation is 190.25 feet. The average elevation at the back of the site is 185.19 feet. Three street trees exist in the public right-of-way along the site's Fulton Street frontage.

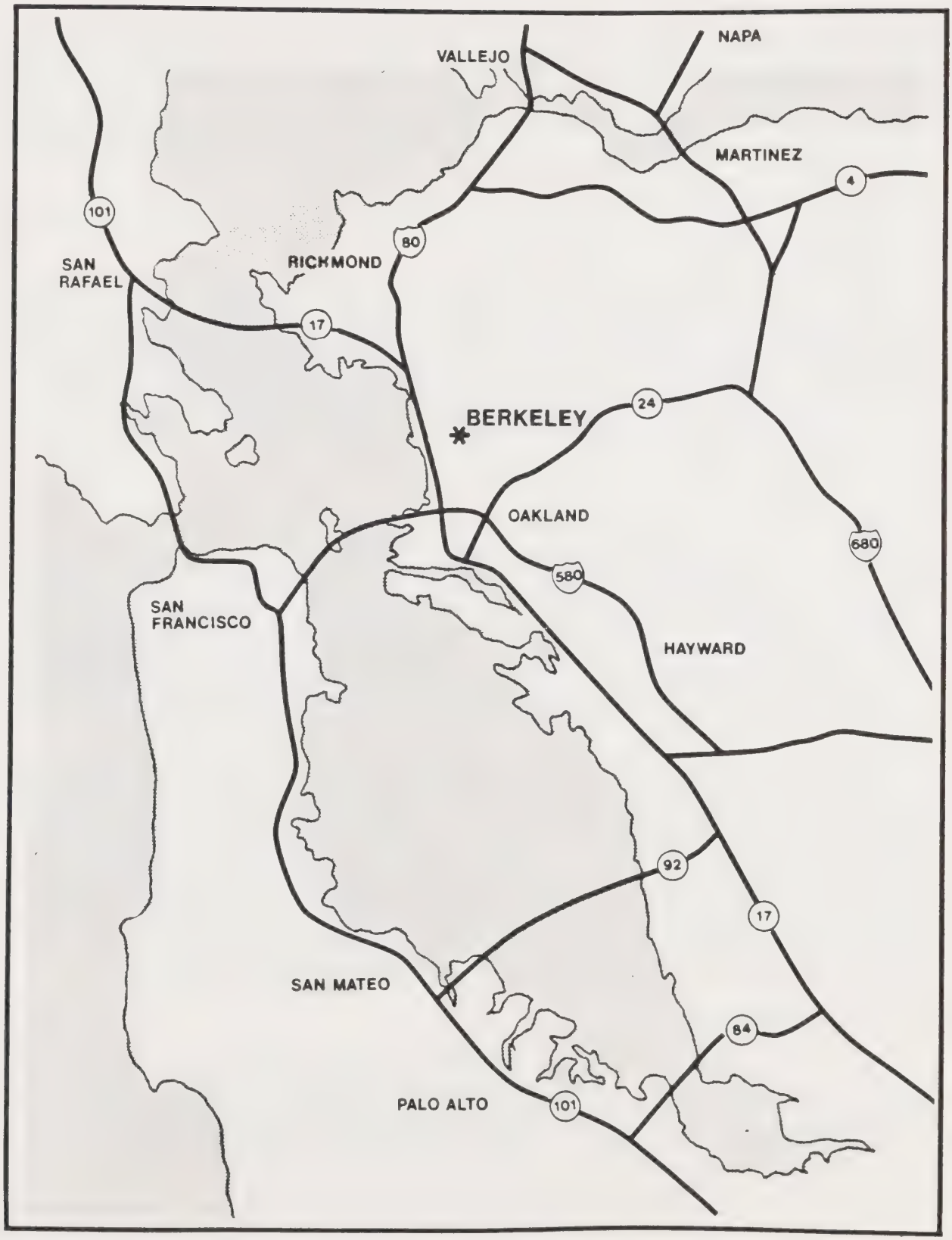


FIGURE 1
REGIONAL LOCATION

FIGURE 2
LOCAL SETTING

FIGURE 3
PROJECT VICINITY - AERIAL PHOTOGRAPH

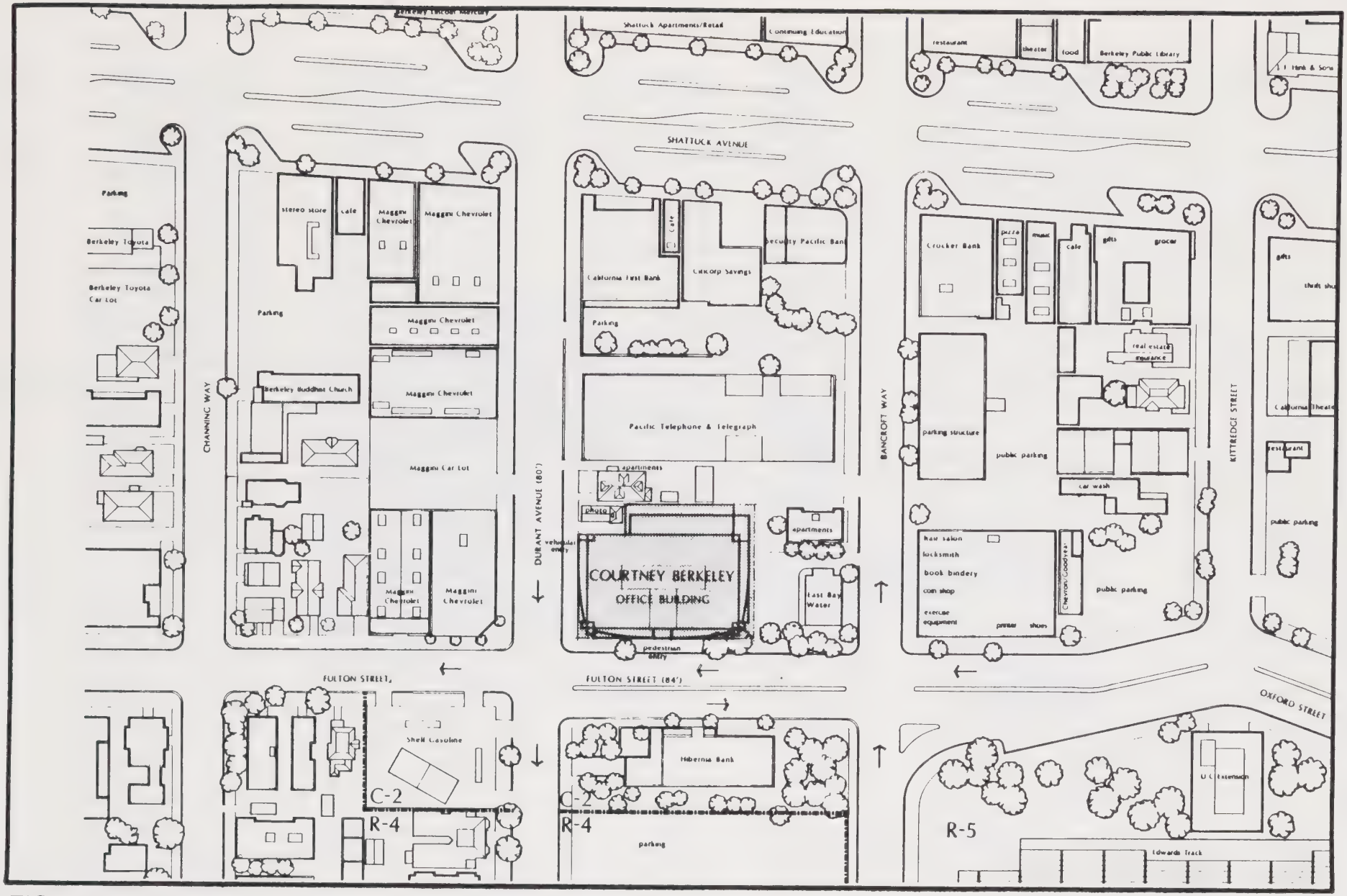


FIGURE 4

PROJECT SITE AND ENVIRONS

SOURCE: Kaplan McLaughlin Diaz for the applicant.

B. APPLICANT'S OBJECTIVES AND PROGRAM

1. General Objective

In response to a perceived healthy market for additional large-area office space in downtown Berkeley, permission has been requested by William Courtney to construct the subject six-story, 97,000-square-foot commercial office building on a half-acre site in downtown Berkeley. Figure 5 shows the architect's rendering of the proposed building. The applicant's intentions are to lease the upper five floors to one or more office tenants, to lease most of the first floor to two or more commercial operations seeking ground-floor retail or commercial service space in a modern office building, and to provide all tenants with offstreet parking in a 195-space below-grade, attendant-controlled parking garage.

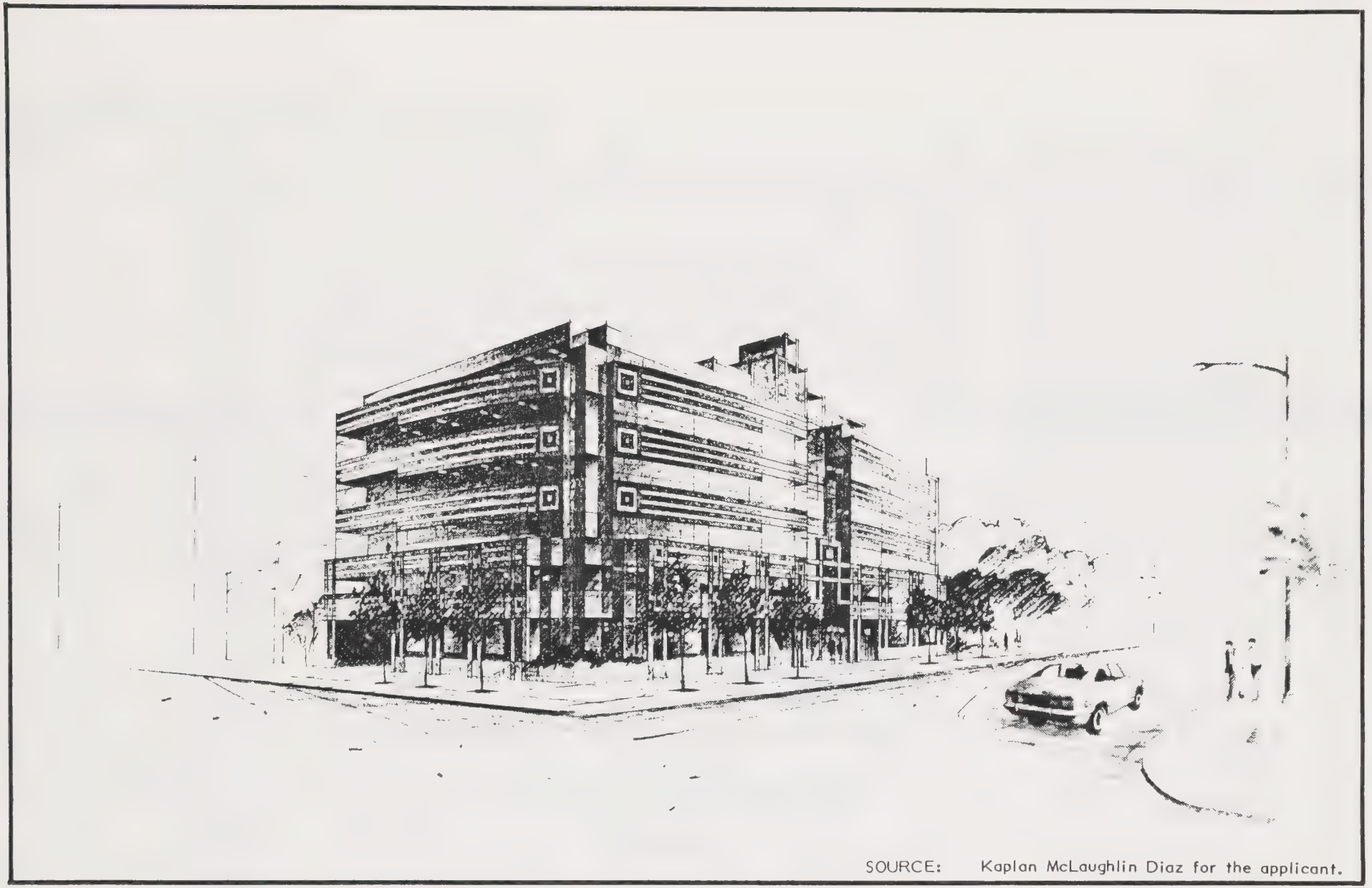
2. Design Characteristics

a. Basis Project Data. The project would consist of one midrise building with six stories above grade and two and one-half parking levels below grade, as shown in Figure 6 (the building section). The six stories above grade would include a ground-level entry and retail-commercial floor with office levels above.

The five office levels would total 84,900 gross square feet, including 74,300 square feet of assignable floor space. The ground level would include 12,050 gross square feet, including 9,800 square feet assignable to retail and commercial service tenants. The site area is 20,750 square feet, or 0.48 acres, for a floor area ratio (F.A.R.) of 4.67:1. Site coverage would be 87 percent. The 55,750-square-foot parking garage would include 195 spaces, including 112 standard stalls and 83 compact stalls.

b. Design Concept. The Courtney Building design is composed of three major elements: (1) a broad two-story base designed to relate in scale and setback to surrounding smaller-scale buildings, (2) a four-story body designed to relate to larger structures in the project vicinity, and (3) a top floor (sixth story) set back to retain the perception from ground level of a five-story building. Other principal features include a bow-front facade on the body of the building and corner cuts which, in combination with the varying setbacks of the various building elements, are intended to distinguish the structure, reduce its perceived bulk and overall visual impact, provide appropriate scale relationships to pedestrians, and reduce shadow effects on surrounding sidewalks and structures.

The base of the proposed structure would be a two-story, 21'-6" high element constructed to the property line (no setbacks) on the east (Fulton Street), south (Durant Avenue), and west property lines. In this manner, the building base is intended to be consistent in scale and street relationship (setback and length) with the Maggini Chevrolet building on Durant across from the site, the Hibernia Bank building on Fulton Street opposite the project, the IOOF Building on Fulton Street to the north, and the California First Bank building on Durant to the west. Some of these scale relationships are illustrated on Figures 6, 19, and 20.



SOURCE: Kaplan McLaughlin Diaz for the applicant.

FIGURE 5
PROPOSED PROJECT - APPLICANT'S RENDERING
VIEW FROM CORNER OF DURANT AND FULTON

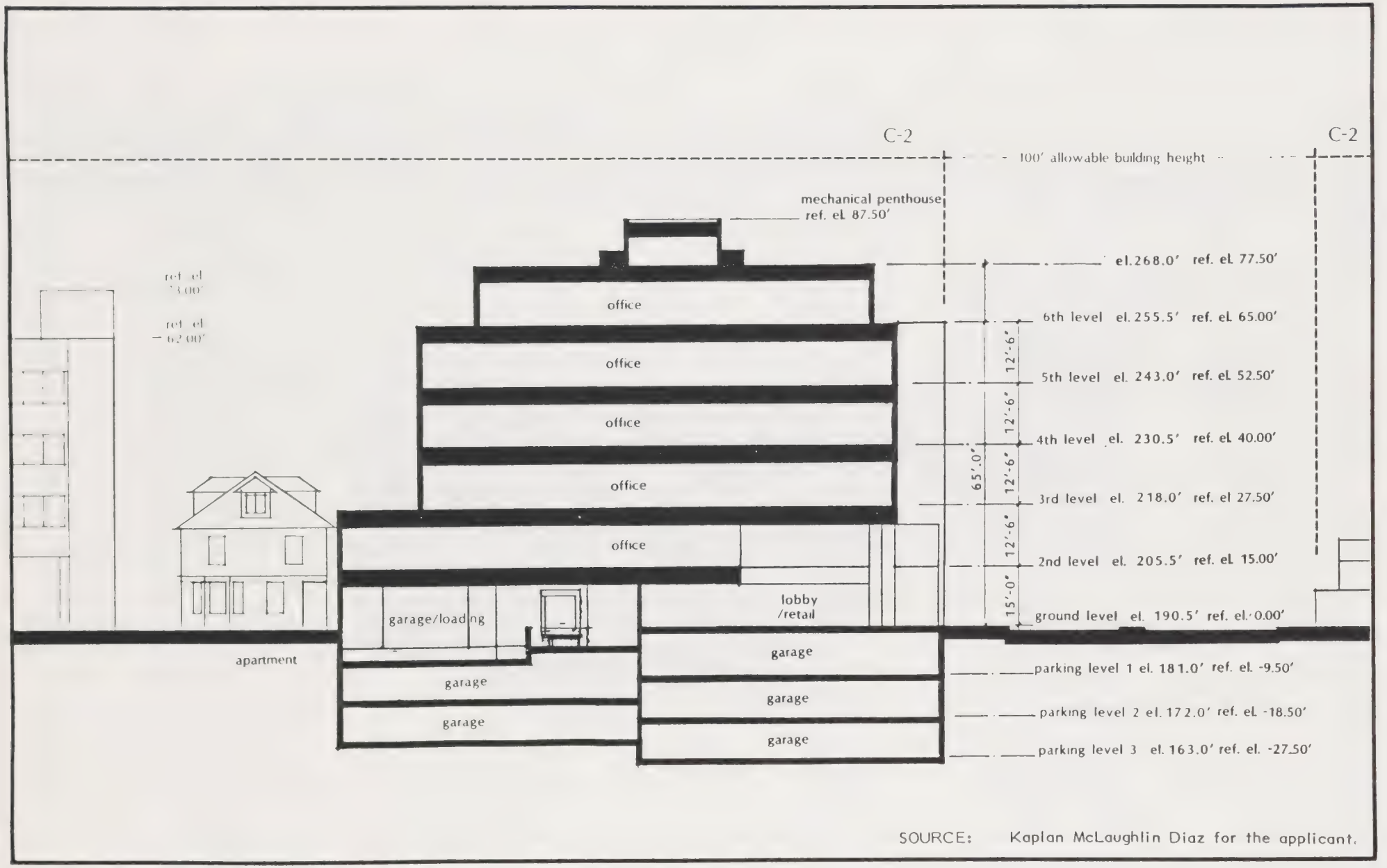


FIGURE 6
PROPOSED BUILDING SECTION

The "body" of the building, levels three through five, would be constructed to 65 feet above grade in order to relate in height to the nearby Pacific Telephone Building (to the west) and the IOOF Building (to the north). These relationships are illustrated in Figures 6, 19, and 20. The four-story "body" would be defined by curved facades, as opposed to the straight facades of the building's second-story base. The curves would result in varying street setbacks, as illustrated by Figure 8. The curved or "bowed" shape of the body is intended to distinguish the Courtney Building from the typical box-like office building. The curves, in combination with the corner cuts, are also meant to soften the visual impact of the structure, create architectural interest, and reduce the building's shadow effects on surrounding streets, sidewalks, and buildings.

The top level of the building is set farther back from the body to provide a sixth floor of leasable office space, while retaining the perceived height and bulk of a five-story building when viewed from ground level. The setback of the top is also intended to further reduce the building's shadow impacts.

c. Setbacks. As explained above and illustrated on Figure 7, no building setback would be provided from the site's east, south, and west property lines. A 5'-0" building setback would be provided from the north property line. A notch in the southwest corner of the building footprint would follow the parcel configuration and enclose the neighboring photo studio on two sides. Wall separations between the proposed Courtney Building and the two sides of the photo studio would be 10 feet (side) and 8 feet (rear). A portion of the rear wall of the Courtney Building would also be close to the existing five-unit apartment structure (2121–2123 Durant). A wall separation of 18 inches would be provided between the two structures. The northwest corner of the Courtney Building would be separated from the rear wall of the existing 8-unit apartment building to the north (2126 Bancroft) by 35 feet.

d. Ground Floor Plan. The proposed ground level floor plan is illustrated on Figure 7. The building would be oriented towards Fulton Street. The ground floor would be the project's access level, with a main pedestrian entry on Fulton Street to a lobby and elevator area. Four elevators would operate from the ground floor entry, including one serving the garage only, a freight-and-passenger elevator serving all levels including the garage, and two elevators serving office levels two through six only. The ground floor plan also includes two retail-commercial areas of 3,900 and 5,900 assignable square feet, respectively, on either side of the entry lobby. Pedestrian access to the two retail-commercial spaces would be via separate, exterior entrances at each of the two Fulton Street corners of the ground floor.

A two-way vehicular access drive to the parking garage is also located at the southwest corner of the ground floor on Durant Avenue. In addition to the 195 subgrade parking spaces, the driveway serves an enclosed ground-floor parking facility for 50 bicycles, two truck stalls, and a raised loading dock near the freight elevator.

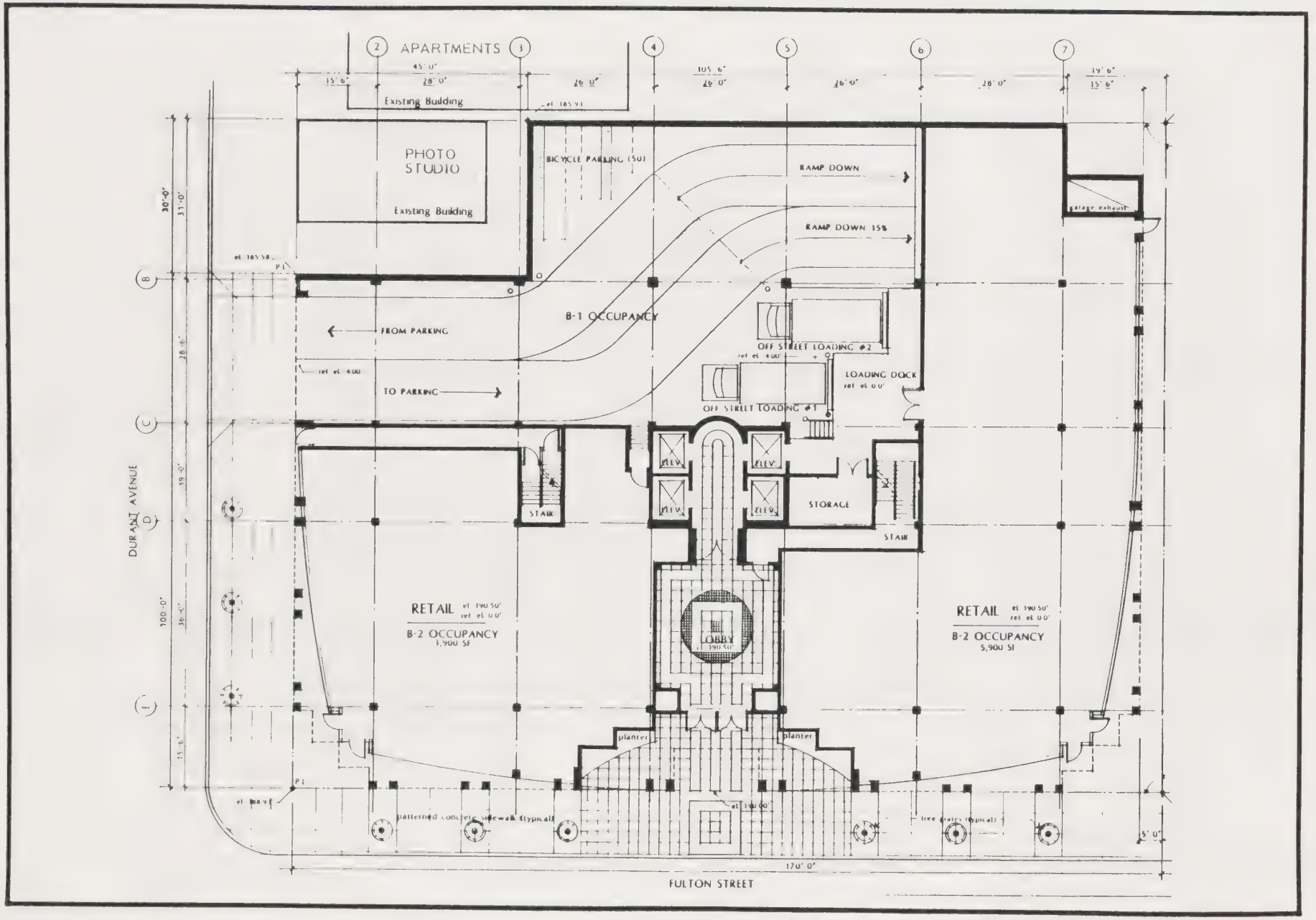


FIGURE 7

PROPOSED GROUND LEVEL PLAN

SOURCE: Kaplan McLaughlin Diaz for the applicant.

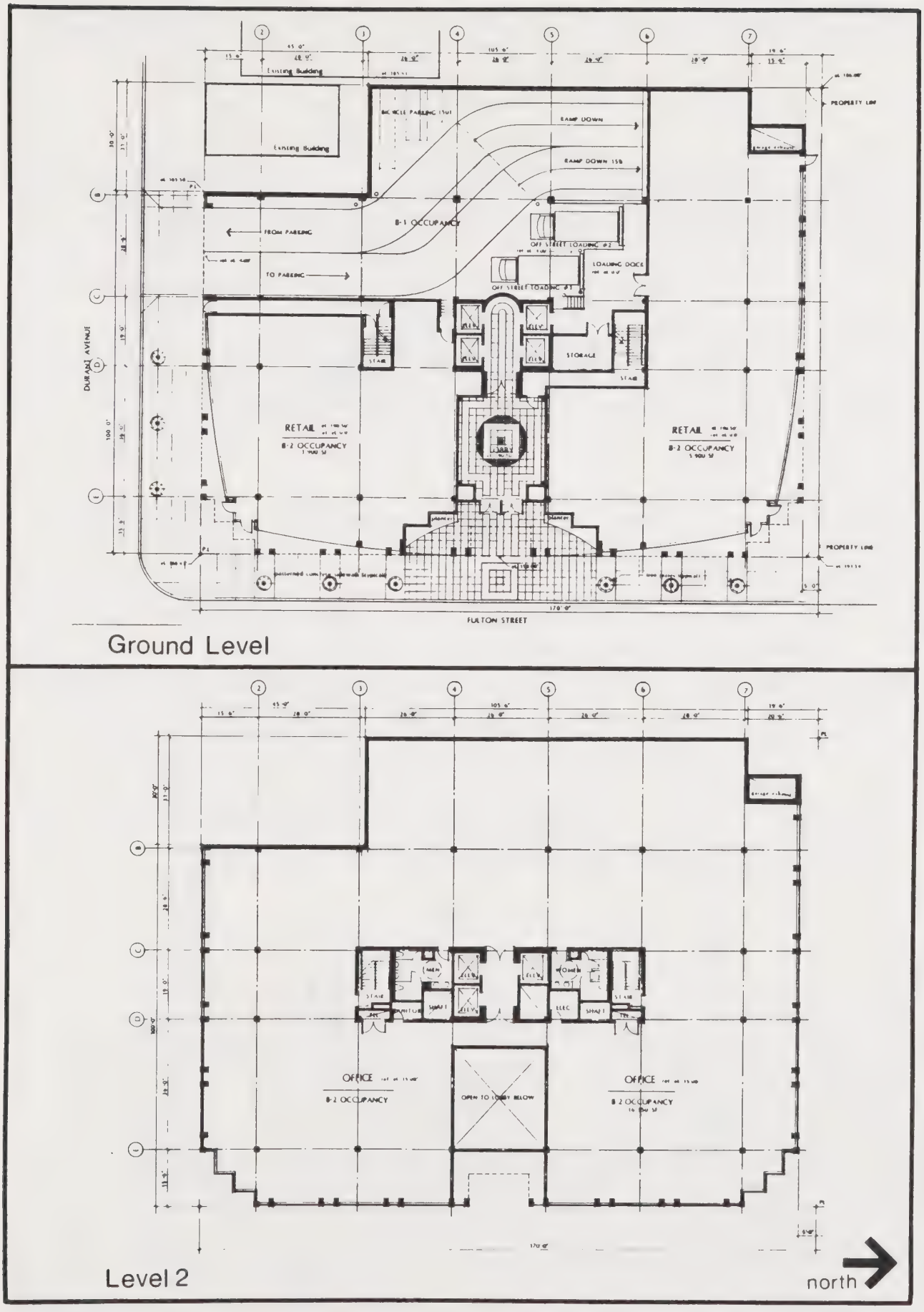
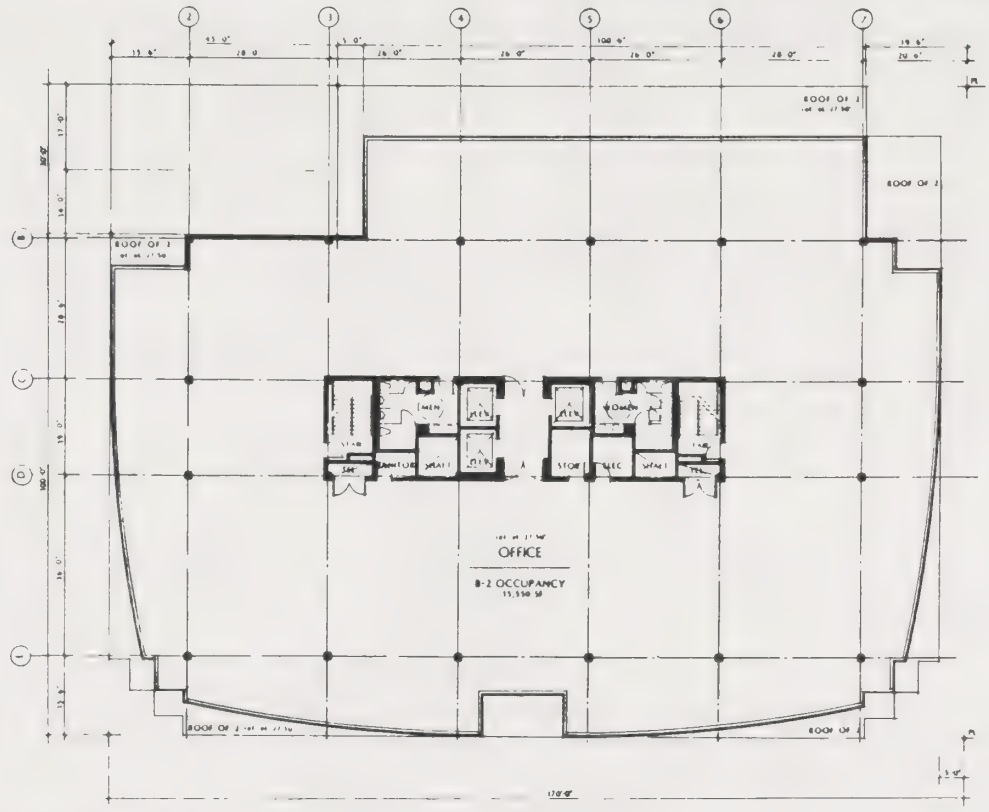


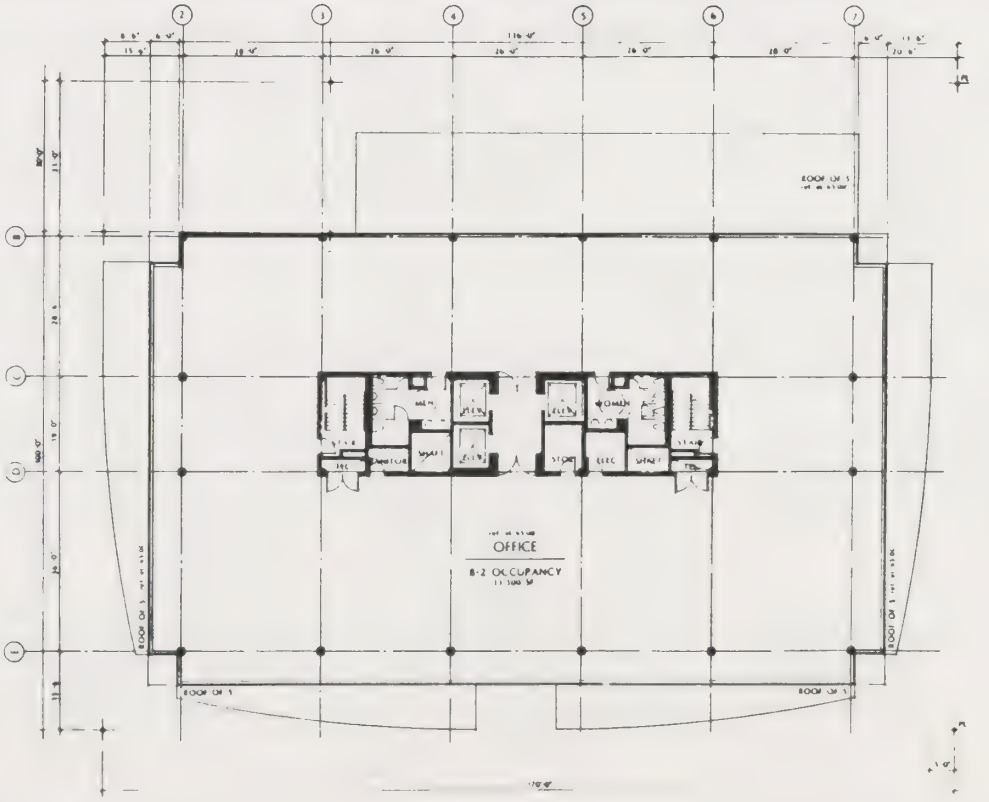
FIGURE 8

PROPOSED GROUND LEVEL AND LEVEL 2 PLANS

SOURCE: Kaplan McLaughlin Diaz for the applicant.



Levels 3,4,5



Level 6

FIGURE 9
PROPOSED FLOOR PLANS-LEVELS 3,4,5, & 6

SOURCE: Kaplan McLaughlin Diaz for the applicant.

e. Levels Two through Six. Floor plans of the upper five levels of the Courtney Building are illustrated by Figures 8 and 9. These levels are designed for lease to one or more office tenants, with each floor served by a common core including three elevators, men's and women's toilet rooms, utility shafts, two stairways, and storage. Two of the three elevators would connect with the ground floor; one would also connect directly to the below-grade parking levels.

f. Roof Plan--Penthouse. The proposed roof plan, as illustrated by Figure 10, would include a 10-foot-high glass penthouse as a building identity element and solar feature, with natural sunlight benefits to the upper building levels. A 10-foot-high mechanical penthouse would also be constructed on the roof behind the glazed element. The mechanical penthouse is also illustrated in Figure 6, the building section.

g. Parking Levels. Figures 11 and 12 illustrate the two and one-half levels of below-grade parking. The applicant has stated that all vehicular parking would be by parking attendant. Over 150 of the 195 stalls would be tandem spaces. Four spaces would be provided exclusively for the disabled. An addendant booth on parking level 1 (see Figure 11) would be the automobile drop-off and pick-up point. Each parking level would be served by two stairways and two elevators. One of the elevators would serve the ground floor only; the other would serve all floors.

An electrical room and garage exhaust fan room are also indicated on parking level 1. The fan room would be vented to the outside by 7'-0" by 15'-6" exhaust duct which would discharge at the roof of the building base (27'-6" above grade) at the northwest corner of the building (see Figures 8 and 9).

h. Colors and Materials. Building materials and colors have not been selected as of this writing. The applicant's architect anticipates use of tile or some similar kind of masonry material on the building exterior, in combination with tinted glass.

C. ANTICIPATED OCCUPANCY PROFILE AND RENTS

1. Tenant Types

The Courtney Building has been designed to attract large-space tenants seeking expansive, well-serviced, and modern office space in proximity to both downtown Berkeley and the university. Marketing efforts would probably be directed primarily towards existing Berkeley businesses in need of larger and modernized office space. Modern office space of the type proposed could attract a range of tenant types from convention businesses to those with university-oriented "high-tech" operations. Conventional office operations could include insurance companies, credit agencies, legal firms, accounting operations, real estate offices, and so on. "High-tech" categories might include research and development and associated office operations, computer-related research and business services such as data or word processing, bio-research companies, and similar technological and scientific activities attracted by the proximity to the university or by the area's broad pool of talent and expertise.

The developer anticipates leasing a large portion of the building to one large "anchor tenant." The marketing approach would probably be to first locate such an anchor tenant, followed by a division of remaining space among smaller tenants.

2. Rents

Office and commercial rents would be determined after project approval when final building design characteristics, special city requirements, and related costs are known.

3. Construction Schedule

Construction of the Courtney Building is scheduled for completion in mid- to late-1987.

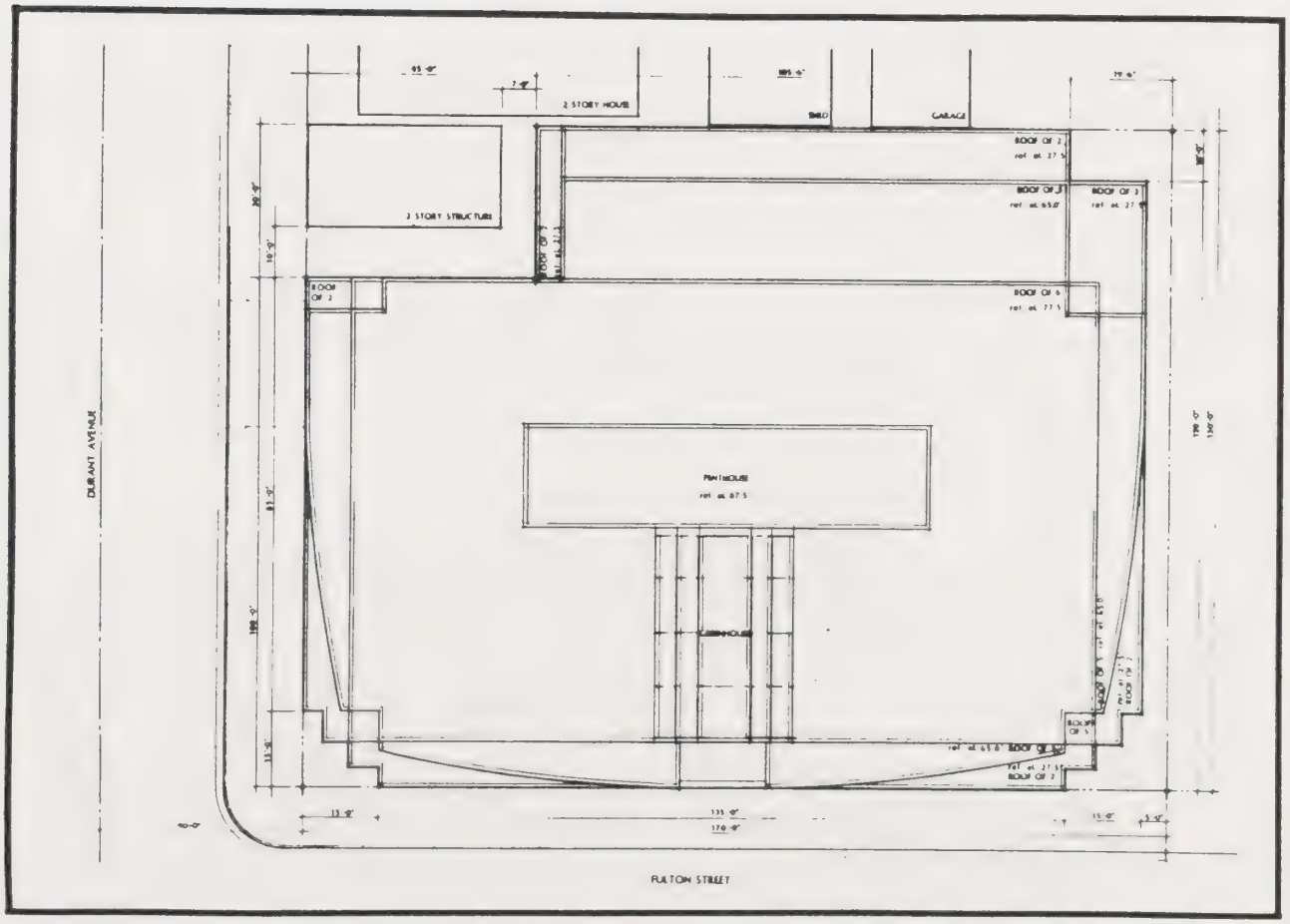
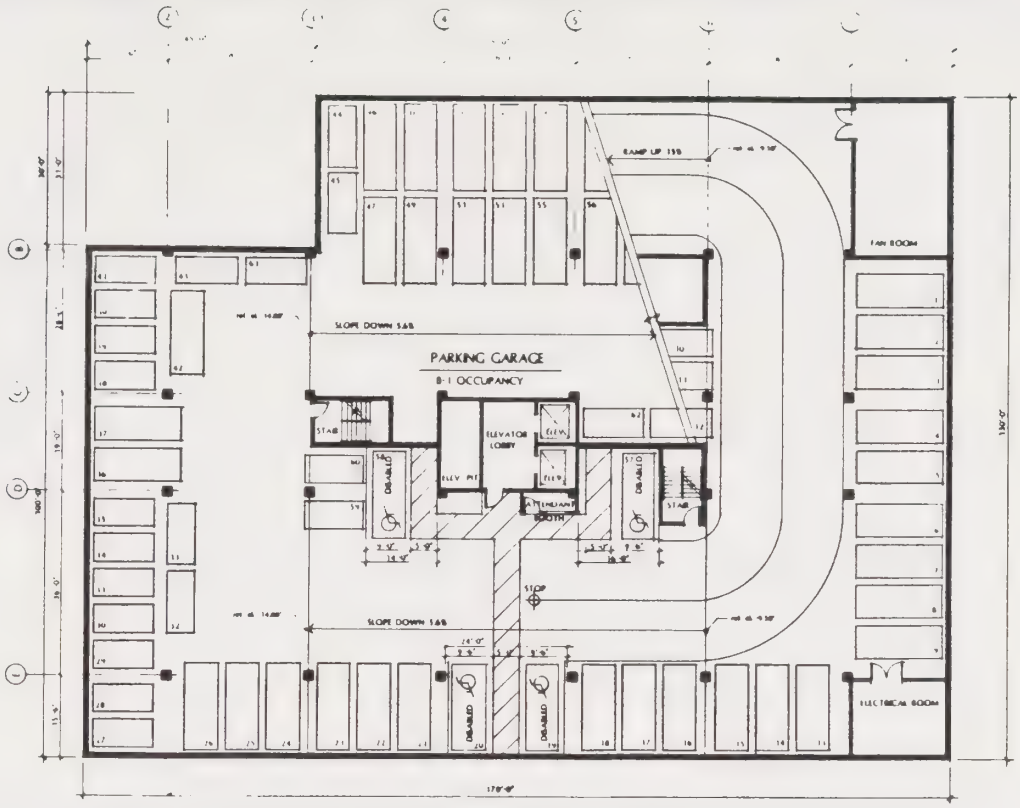
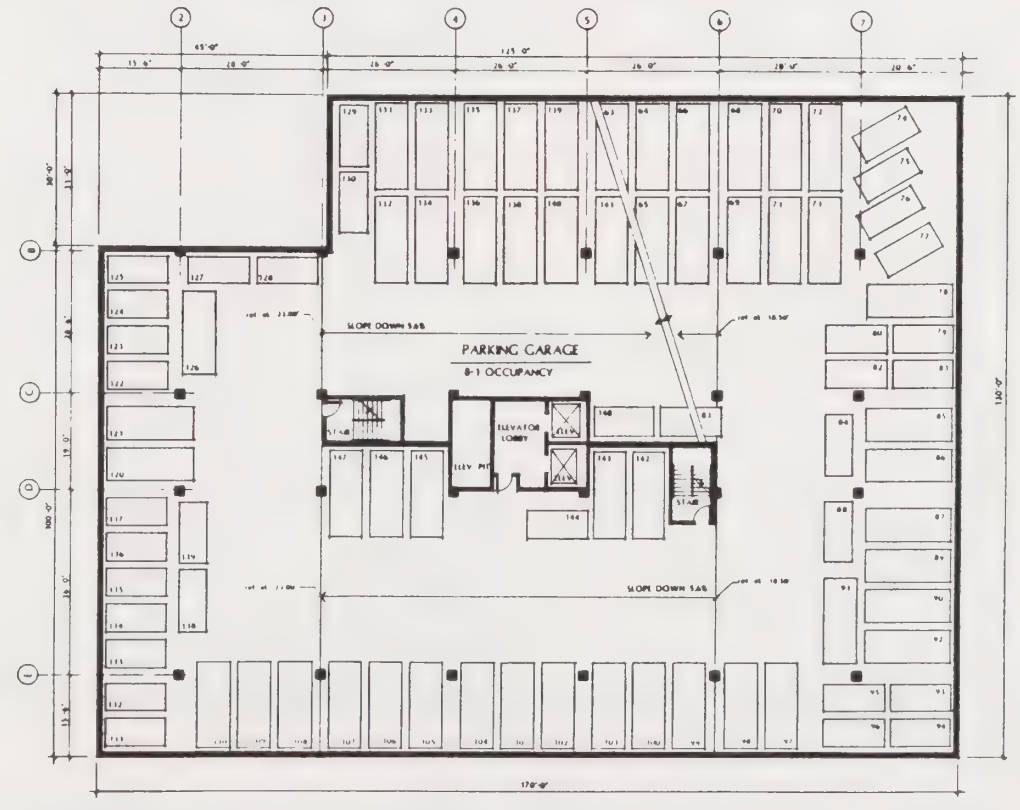


FIGURE 10
PROPOSED ROOF PLAN
SOURCE: Kaplan McLaughlin Diaz for the applicant.



Level 1



Level 2

FIGURE 11

PROPOSED PARKING LEVELS 1 AND 2

SOURCE: Kaplan McLaughlin Diaz for the applicant.

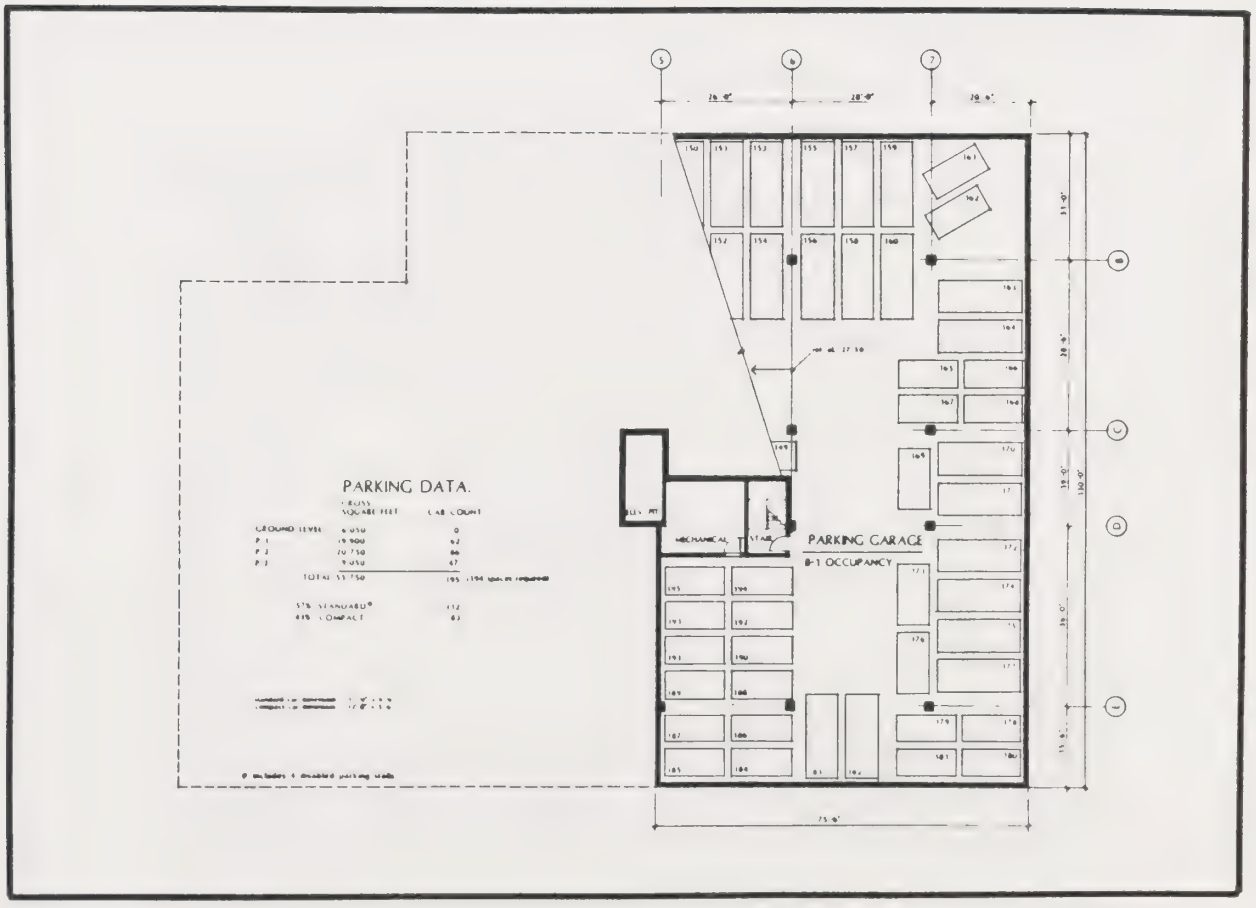


FIGURE 12
PROPOSED PARKING LEVEL 3

SOURCE: Kaplan McLaughlin Diaz for the applicant.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

A. LAND USE, URBAN DESIGN, AND VISUAL FACTORS

1. LAND USE

a. Existing Setting

(1) Project Block. The 0.48-acre Courtney Building site is currently being used as a privately operated public parking lot. Land uses adjoining and immediately surrounding the project site are illustrated on Figure 13. Immediately adjacent to the southwest corner of the project site is a small photo studio (2125 Durant) and a 5-unit apartment house (2121–2123 Durant).* The photographic studio is about 20 feet in height (2 stories) with a 30-foot Durant frontage and no setback. It sits on a small, 900-square-foot lot (0.02 acres). The 5-unit apartment building is about 30 feet high with a 40-foot Durant frontage and a 15-foot Durant setback. Its lot is 0.12 acres. The photo studio and apartment building are substantially smaller in size than the building "envelope" which is allowable for these two properties under the city's current C-2 zoning provisions. However, the small lot size of the studio limits its potential for an intensified use. Only assembly of this lot with the adjacent apartment lot, or with the project property, would allow feasible intensification. Such intensification of the use of these lots would result in the loss of five housing units,* unless a residential component were incorporated in the new use.

Immediately behind the photo studio and the 5-unit apartment building, and dominating the west side of the project site, is the Pacific Telephone Building. The Telephone Building is 62 feet high (4 stories) with 80-foot frontages on Durant and Bancroft (no setbacks). Its parcel is 0.7 acres.

North of the project site on Bancroft are two other project neighbors. One is an 8-unit apartment building (2126 Bancroft); the other is the local East Bay Municipal Utility District Building at the corner of Fulton and Bancroft. The apartment building is roughly 43 feet high (3 stories) with a 40-foot Bancroft frontage (approximate), no Bancroft setback, and a 30-foot rear yard setback from the project site. It sits on a 0.2-acre lot. The building has been identified as a city landmark by the Berkeley Architectural Heritage Association (BAHA). The structure is referred to in the California State Historic Resources Inventory as the Waste and Clark Apartments. The EBMUD building is 24 feet high (2 stories) with a 40-foot side yard setback from the project site. The side yards for both buildings are used for employee and visitor parking. The EBMUD office lot is 0.18 acres.

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* Four of the five units are currently unoccupied. However, the building represents a potential rental and, if sold, would be marketed as a rental property.

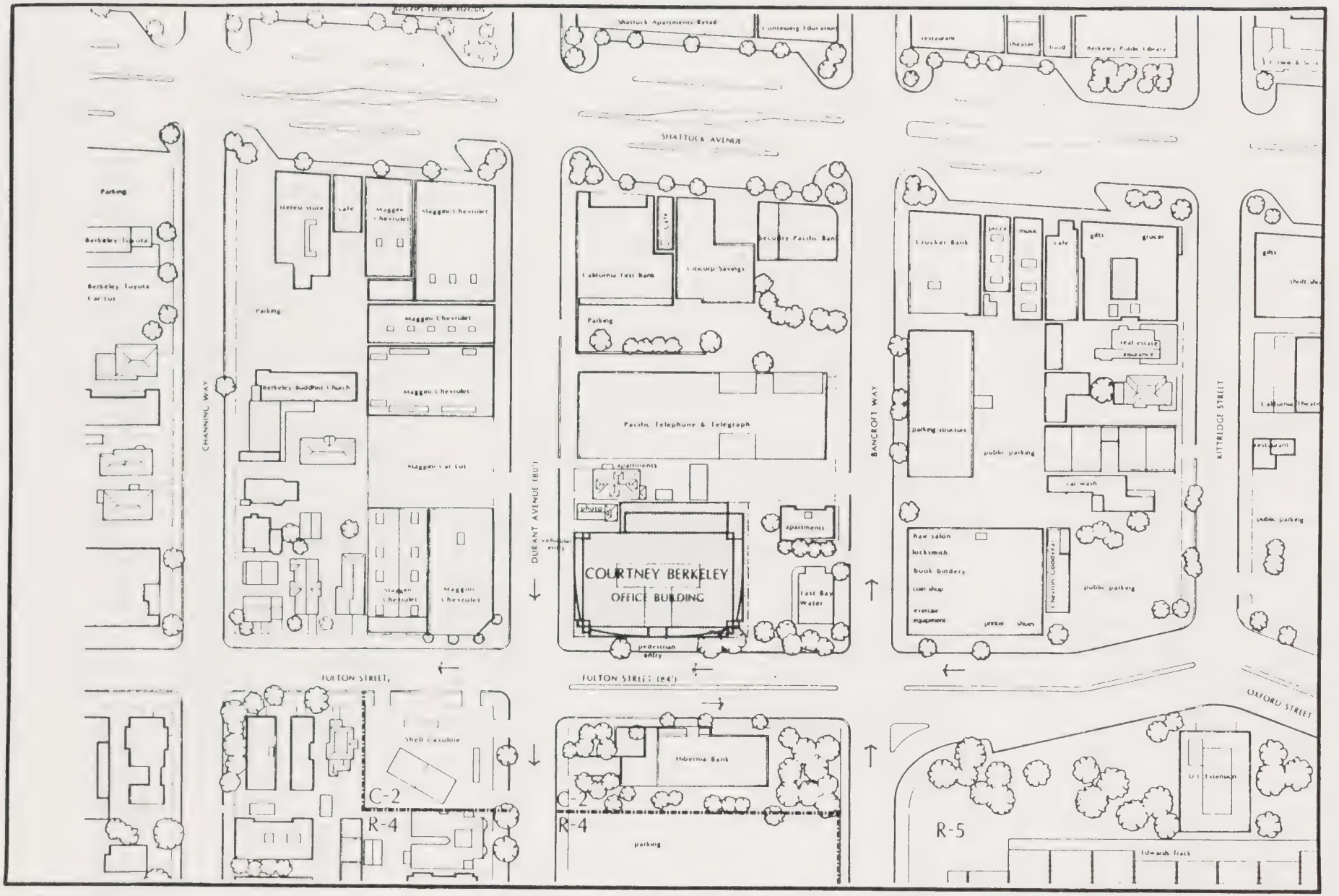


FIGURE 13

PROJECT SITE AND ENVIRONS

SOURCE: Kaplan McLaughlin Diaz for the applicant.

The California First Bank Building is west of the site at the corner of Durant and Shattuck. The bank fronts on Shattuck Avenue. It is 25 feet high (2 stories) with a 150-foot Durant frontage and no setback. Its lot is 0.4 acres. Other land uses in the project block include another bank at the corner of Bancroft and Shattuck, and a savings-and-loan and restaurant between the two banks on Shattuck.

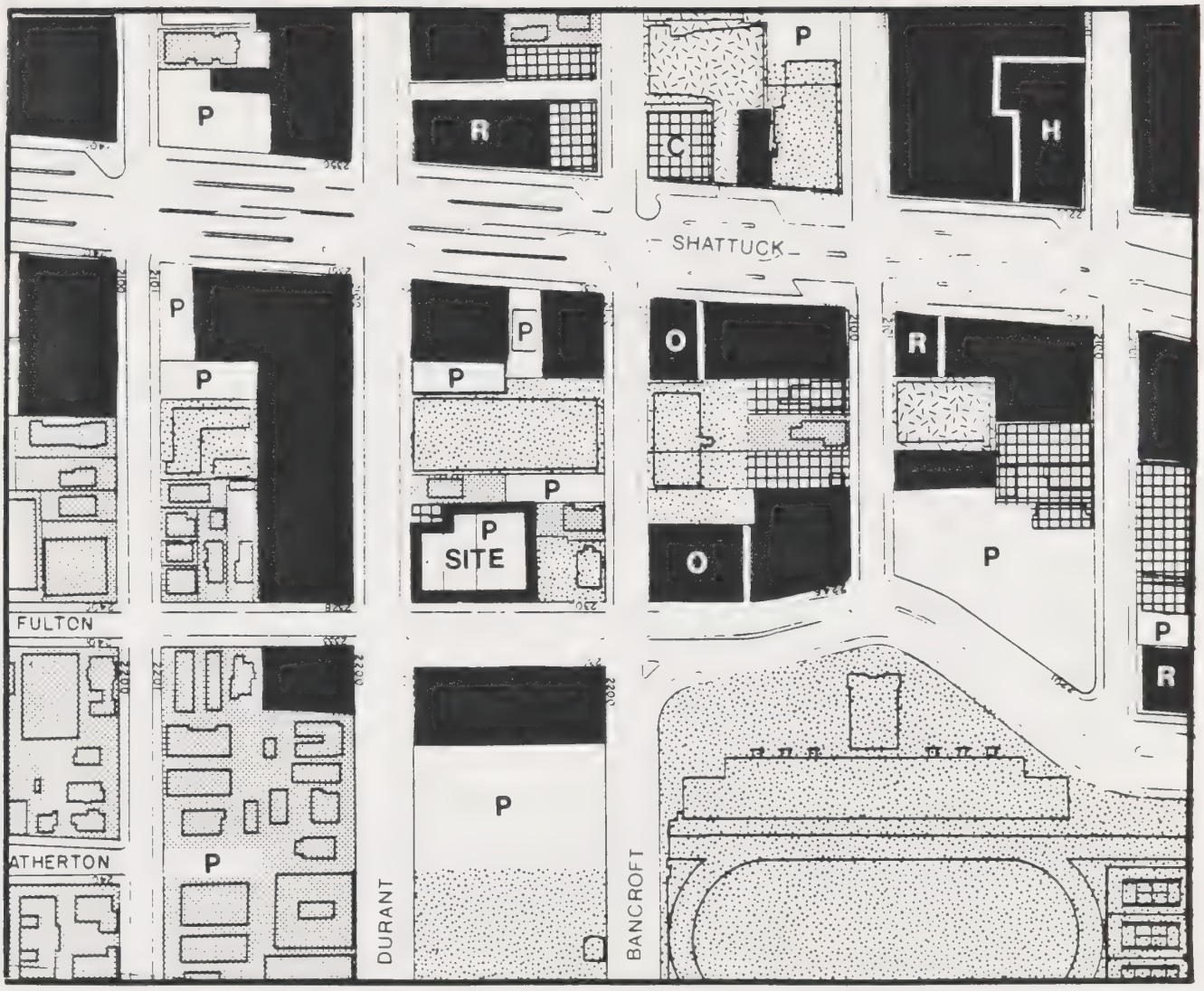
(2) South of Project Site. The Maggini Chevrolet sales and service complex occupies all four buildings across from the project site on Durant Avenue between Fulton and Shattuck (see Figure 13). The first structure of the four, on the corner of Durant and Fulton across from the project site (2140 Durant Avenue), is an architecturally and historically distinctive building listed as a city landmark by the BAHA. The structure is referred to in the California State Historical Resources Inventory as the old Howard Automobile Company building.

(3) North of the Project Site. North of the project site at the northwest corner of Fulton and Bancroft is the IOOF Building. The IOOF Building is 56 feet high (3 stories) with a 130-foot frontage on Fulton and a 100-foot frontage on Bancroft, with no setbacks. This structure has also been identified as a city landmark by the BAHA, and is listed in the State Historic Resources Inventory (the Odd Fellows Temple).

(4) East of the Project Site. Directly across Fulton Street from the project site is the Hibernia Bank building. The structure is approximately 18 feet high (one story) with a 125-foot frontage and no setback along Fulton, and landscaped setbacks of approximately 40 feet on Durant and 60 feet on Bancroft.

(5) Overall Land Use Patterns in Project Vicinity. Figure 14 diagrams the overall land use pattern in the project vicinity. The diagram indicates that the area is dominated by **retail and commercial service uses.** Some of these retail/commercial service uses are identified as multi-use, primarily with ground-floor retail and upper story office. Ground-floor retail with upper-story residential is a less common multi-use in the area. Surface **parking** is another major land use component in the project vicinity, due to the area's proximity to the downtown core and the university. **Residential** uses in the area include the university-related neighborhoods south and east of the site (Fulton, Durant, and Channing) which are dominated by duplexes, flats, and apartments, and a few mixed-use forms, as described earlier (i.e., apartments above ground-floor retail on Shattuck and on Oxford and a residence hotel above ground-floor retail on Shattuck). **Office** uses are also scattered throughout the area in both the mixed-use form described earlier, and in conventional office buildings. **Educational** and **institutional** uses are also a major part of the local pattern. These include, of course, the university, plus utility (Pacific Telephone and EBMUD), governmental, religious (a church), and civic activities (the public library). **Entertainment** uses in the area include the UA (United Artists) Movie Theatre on Shattuck.

(6) Zoning in the Project Vicinity. Local land use regulations for the downtown are set forth in the city's **Zoning Ordinance** (10/4/84 revision). Current zoning designations in the project vicinity are diagrammed on Figure 15. The diagram indicates that the predominant zone in the area is C-2: Downtown Commercial. A zoning change is currently being considered by the city, which would reduce the size of



RESIDENTIAL

RETAIL AND COMMERCIAL SERVICES

OFFICE

ENTERTAINMENT

EDUCATIONAL, INSTITUTIONAL, QUASI-PUBLIC

R — UPPER FLOOR RESIDENTIAL

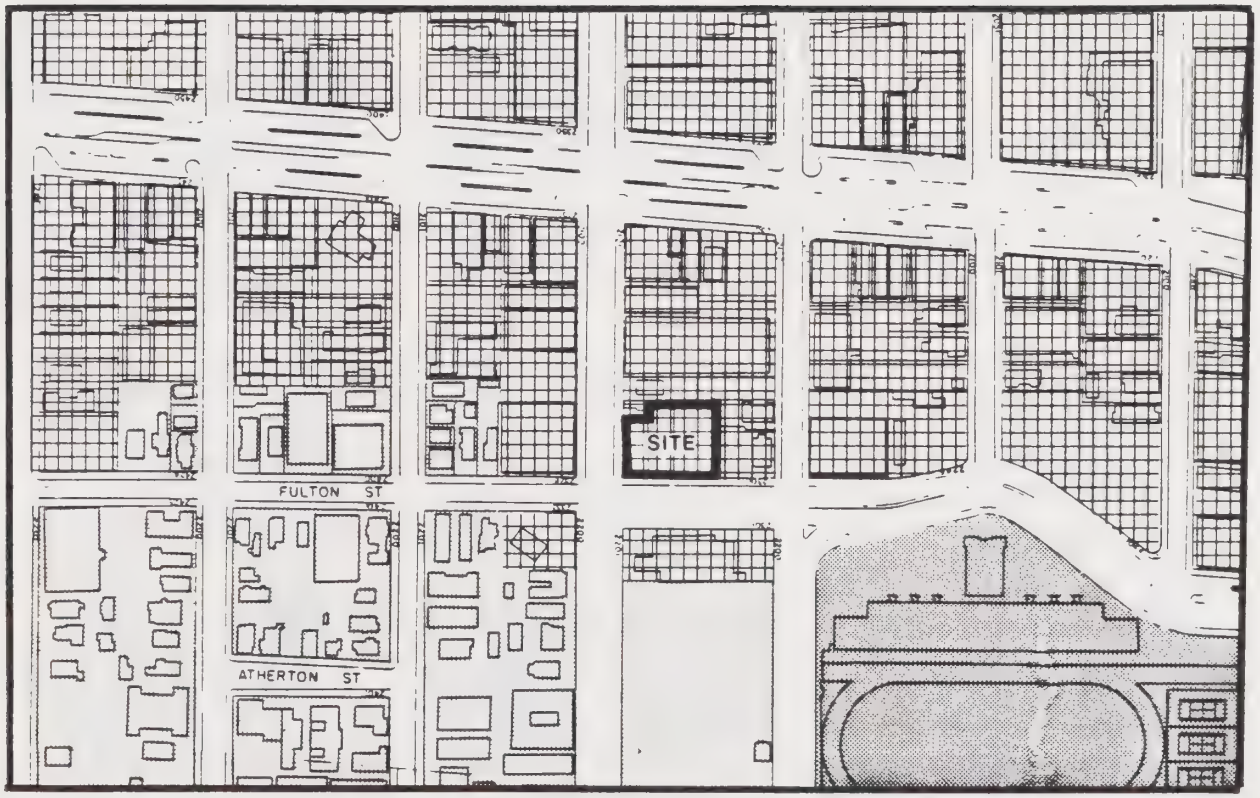
C — GROUND FLOOR COMMERCIAL

O — UPPER FLOOR OFFICE OR INSTITUTIONAL

H — HOTEL ABOVE

P — PARKING

FIGURE 14
LAND USE PATTERN - PROJECT VICINITY



C-2
DOWNTOWN
COMMERCIAL

R-5
HIGH DENSITY
RESIDENTIAL

R-4
MULTIPLE FAMILY
RESIDENTIAL

FIGURE 15
ZONING - PROJECT VICINITY

the C-2 designation. The proposed new C-2 boundary would follow the Fulton Street and Durant Avenue edges of the project site, as shown on Figures 13 and 16. The stated purpose of the proposed zoning change is to:

a. Intensify the downtown as a compact urban center; and

b. Protect adjacent neighborhoods by containing downtown growth and scaling down development at the periphery of the downtown.

Under the proposed zoning change, areas outside the revised boundary which are now C-2 would be rezoned to C-1: General Commercial.

Permitted uses in the C-2 District include retail, commercial services, and office establishments, as well as residential units. For residential uses, the ordinance indicates that R-5 zoning regulations also apply in the C-2 District, with possible modifications to encourage ground-floor commercial. C-2 regulations allow a maximum floor area ratio (FAR) of 6.0 and a maximum building height of 100 feet. No setbacks or yards are required except where the building site is adjacent to a residential district.

In October of 1984, the city also adopted additional **interim regulations** for the C-2 District which require a **Use Permit** for buildings over 10,000 square feet in gross floor area per floor, floor area ratios greater than 2.0, or heights greater than 45 feet. **Design Review** by the Design Review Subcommittee of the Planning Commission is required by the interim regulations prior to issuance of the Use Permit. This interim zoning amendment will remain in effect until January 31, 1986, unless extended or permanently adopted by the Council.

Permitted uses in the C-1 District also include retail, commercial services, office, and residential uses. For residential uses, R-4 zoning regulations apply. One of the purposes of the C-1 District is to promote development which is compatible with adjacent residential and commercial areas. C-1 regulations allow a smaller FAR of 3.0 and a maximum building height of three stories (50 feet) without a Use Permit, and six stories (75 feet) with a Use Permit.

(7) Current Development Characteristics in the Project Vicinity. Major land use relationships in project vicinity, and the existing pattern of development intensity in the downtown, are diagrammed on Figure 16. The diagram shows the "anchor" relationship of the project site to the proposed new boundary of the Downtown Commercial (C-2) district. The university lies immediately east of this downtown boundary. Two residential areas, the Fulton/Haste and Channing/Milvia neighborhoods, lie to the southeast and southwest, separated from the downtown by the proposed C-1 transitional area.

The pattern of development intensity within the proposed downtown boundary is diagrammed on Figure 16 in terms of "floor area ratios." The floor area ratio (FAR) is derived by dividing total building floor area by total underlying land area. For example, a four story building built to the property line would have a floor area ratio of 4.0. The diagram illustrates the fact that the most intensive building types (FARs of 3.0 or greater) are for the most part concentrated along Shattuck Ave-

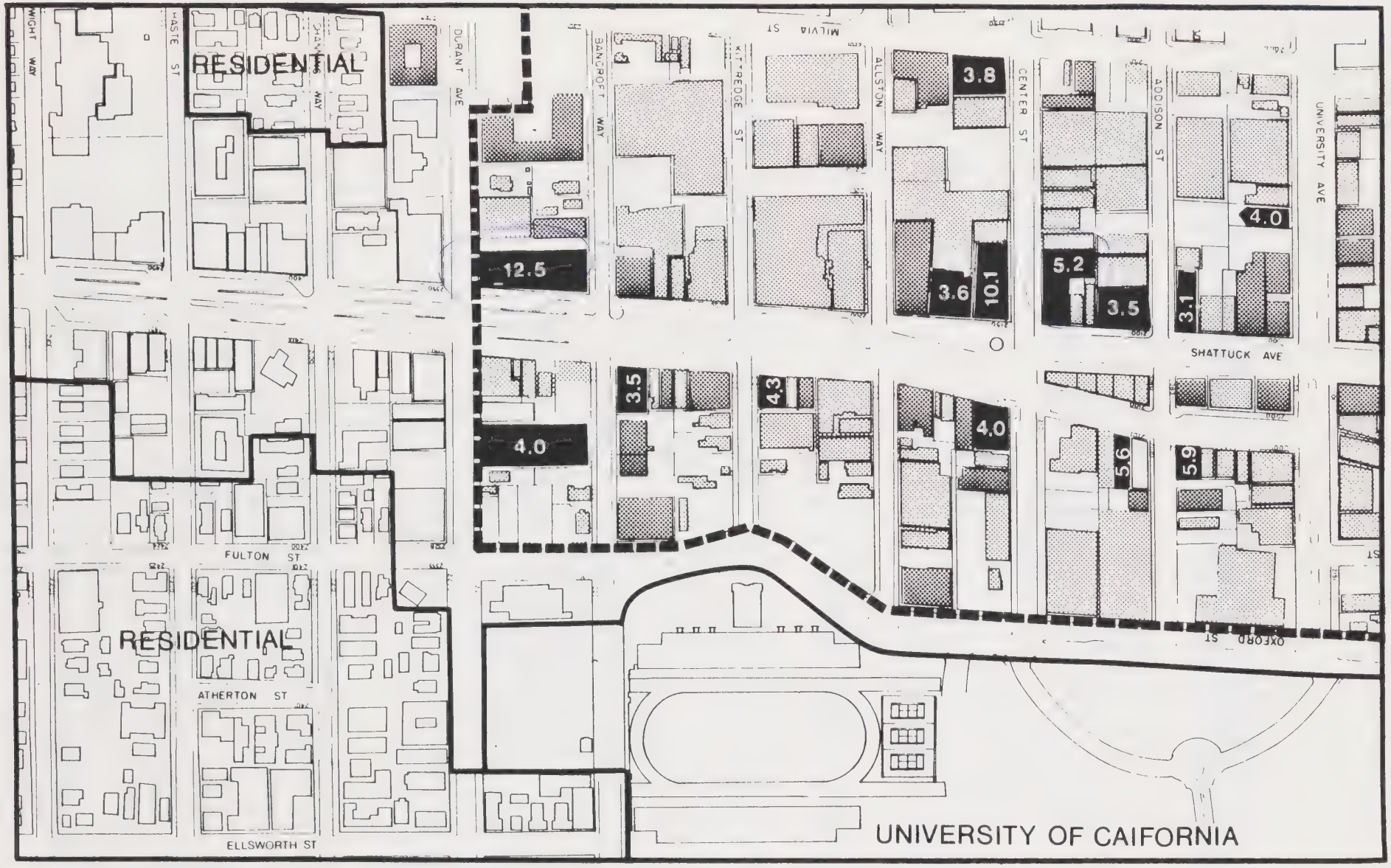


FIGURE 16
DEVELOPMENT CHARACTERISTICS IN THE PROJECT VICINITY

nue. Of the 14 buildings in the project vicinity with FARs of 3.0 or above, 11 front on Shattuck, one fronts on University Avenue, one fronts on Milvia, and one is located in the center of the project block (the Pacific Telephone Building).

The project block between Durant and Bancroft has an aggregated FAR of 0.90. This ratio is low in comparison to all other blocks fronting on Fulton-Oxford between Bancroft and University. The adjacent block to the north between Bancroft and Kittredge has an aggregated FAR of 1.50, between Kittredge and Allston Way: 1.61, between Allston Way and Center: 1.53, between Center and Addison: 1.15, and between Addison and University: 1.91.

An analysis of land utilization along Fulton and Oxford streets completed for the the University* found that the level of **land utilization** along this downtown edge, i.e., the ratio of land value to improvement value, is very low in comparison to other downtown lands.

The study noted that in general, such low land utilization values on the edge of a downtown indicate a high potential for development and intensification (as reflected by the proposed action).

(8) Downtown Land Use Trends. A recent land use survey by city staff indicates that the land use pattern in downtown Berkeley has undergone significant changes in the past 20 years. In particular, the extent of office and commercial uses has increased substantially. Residential (including hotels), parking, and institutional uses (university, utilities, library, etc.) have shown little change, and auto sales and service uses have declined. The survey indicated that by 1984, office uses accounted for 35 percent of all built space in the downtown. Commercial land uses accounted for 26 percent of the 1984 downtown total, followed by vehicular parking and automobile services (17 percent), residential (12 percent), and institutional uses (13 percent). The survey indicated that the amount of private office space in the downtown--close to 900,000 square feet in 1984--had more than doubled over the previous 20 years. The 1984 survey also also indicated that there were a little more than 1 million square feet of downtown commercial space in the downtown, evenly split between retail and services (food serving establishments, bank and financial services, other services, and entertainment). The survey indicated that the amount of commercial floor space had increased by around 30 percent over the previous 20 years.

(9) Recent and Current Downtown Development Proposals. In addition to the proposed project, 11 other notable development projects (above 15,000 square feet) have either been proposed, approved, recently completed, or are now under construction in the Berkeley downtown. These projects are listed and described in Table 1, and mapped on Figure 17. With the exception of the Oxford House condominium project, all include an office component. Additional office space subtotals include approximately 150,000 square feet recently completed (since early 1984), and 238,000 square feet approved or currently under construction. (The 60,000-

* Sedway/Cooke, University of California, Berkeley, West Side Study, Consultant Recommendations, May 1983. The study has not been officially adopted or accepted as University policy.

Table 1
DOWNTOWN DEVELOPMENT: PROPOSED, APPROVED, UNDER CONSTRUCTION, OR RECENTLY COMPLETED (See Figure 17)

Fig. 17 Ref.	**Proposed Buildings**	
1	PROJECT: COURTNEY BUILDING	
	Address:	2308-18 Fulton Street
	Square Footage:	97,000 (incl. 87,200 office; 9,800 retail)
	F.A.R.:	4.67
	Description:	6-story office building, ground floor retail, 2½ levels of underground parking (195 spaces)
	Developer/Owner:	Courtney Group
	Current Status:	Use Permit Applications submitted; EIR under preparation
2	UC Office of the President (University Hall Addition)	
	Address:	Oxford/Addison
	Square Footage:	60,000 (from p. 67 of the April 1985 Draft EIR)
	Description:	Earlier proposal to construct a new University Hall in three phases, totalling 227,000 square feet, and to demolish the existing 154,000 sq.ft. building has been set aside. University is now proposing to construct a 60,000 sq.ft. addition to University Hall, and to maintain the existing building. The addition has not yet been designed, but could be up to seven stories high. The addition as proposed would have 184 employees. Estimated date of occupancy: 1988.
	Developer/Owner:	University of California
	Status:	Planning stage
3	Oxford House	
	Address:	1899 Oxford Street
	Square Footage:	36,496 (excluding garage)
	F.A.R.:	2.19
	Description:	34 condominium residential units in six stories, incl. 17 one-bedroom and 17 two-bedroom; 36 parking spaces
	Developer/Owner:	Oakland & Imada/Texaco, Inc.
	Current Status:	Use Permit Application submitted; expanded initial study being prepared

Table 1, **continued**
DOWNTOWN DEVELOPMENT: PROPOSED, APPROVED, UNDER CONSTRUCTION, OR RECENTLY COMPLETED (See Figure 17)

Fig. 17 Ref.	**Approved or Under Construction**	
4	Berkeley Commercial Realty Building	
	Address:	2150 Kittredge Street
	Square Footage:	24,000 total, including: 20,000 office 4,000 ground floor retail
	F.A.R.:	3.55
	Description:	5-story office building with ground floor retail, no parking provided
	Developer/Owner:	Berkeley Commercial Realty
	Current Status:	Under construction, almost complete
5	Constitution Square (info coming on location and use)	
	Address:	21 Shattuck Avenue
	Square Footage:	34,000 total, including: 15,000 retail 17,000 office
	F.A.R.:	N.A.
	Description:	Remodeling of Smith's Department Store to provide ground-floor retail and office
	Developer/Owner:	Warehams Property Group
	Current Status:	Under construction
6	ELS Building	
	Address:	2030 Addison Street
	Square Footage:	38,000 total, including: 28,000 office 10,000 retail
	F.A.R.	5.65
	Description:	7-story office building with ground floor retail, incorporating existing 2-story building
	Developer/Owner:	ELS Design Group
	Current Status:	Under construction

Table 1, **continued**
DOWNTOWN DEVELOPMENT: PROPOSED, APPROVED, UNDER CONSTRUCTION, OR RECENTLY COMPLETED (See Figure 17)

Fig. 17 Ref.		
	Approved or Under Construction, continued	
7	City Center Hotel and Convention Center	
	Address	2050 Center Street
	Square Footage	176,300 total , including: 99,000 hotel 37,000 office 14,500 auxiliary 10,300 retail 8,500 conference rooms 5,000 restaurant 2,000 cocktail lounge
	F.A.R.	5.87
	Description:	250-room hotel, conference center, restaurant, cocktail lounge, office and retail; parking for 166 cars
	Developer/Owner:	Gerald W. Langkammerer
	Current Status:	Use Permit approved; construction has not begun
8	Golden Bear Building	
	Address:	University Avenue at Milvia Street
	Square Footage:	143,000 total, including: 143,000 office/retail (incl. 118,000 of office and 25,000 of retail)
	F.A.R.:	2.03
	Description:	5-story office-commercial project with one level of underground parking for 190 spaces
	Developer/Owner:	Golden Bear Joint Ventures/Carl Swenson Development Company
	Current Status:	Construction underway; projected completion date = August 1986

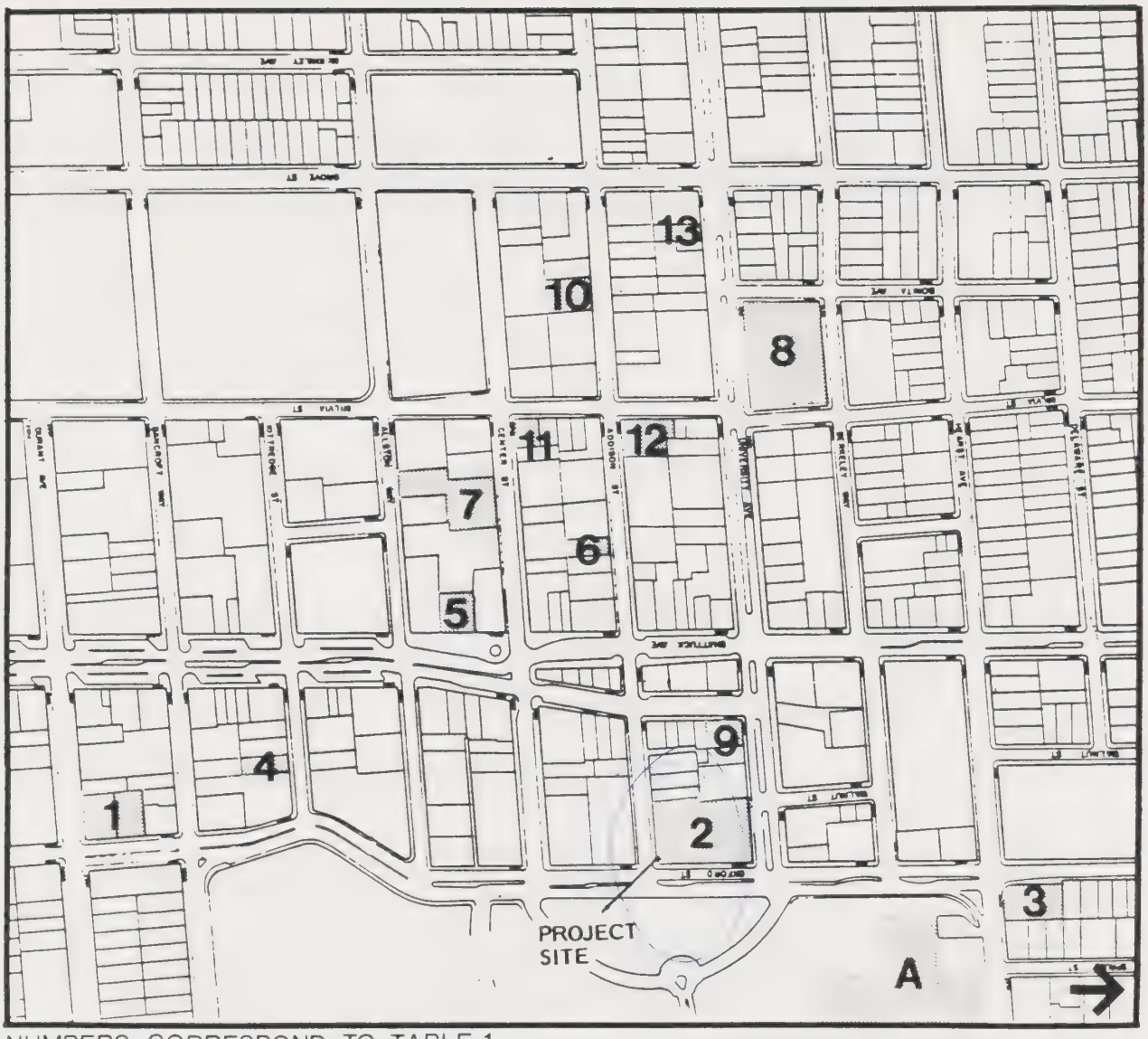
Table 1, **continued**
DOWNTOWN DEVELOPMENT: PROPOSED, APPROVED, UNDER CONSTRUCTION, OR RECENTLY COMPLETED (See Figure 17)

Fig. 17 Ref.		
Recently Completed		
9	Berkeley Towers	
	Address:	2120 University Avenue
	Square Footage:	45,000 total including: 38,000 office 7,000 retail
	F.A.R.:	--
	Description:	7-story office building with ground floor retail
	Developer/Owner:	Berkeley Junction
	Current Status:	Building recently completed (1983)
10	Berkeley Armory Building/Addison Court	
	Address:	1950 Addison Street
	Square Footage:	27,000
	F.A.R.:	D.N.A.
	Description:	Renovation of existing warehouse into offices
	Developer/Owner:	Addison Street Association
	Current Status:	Building recently completed (1983)
11	Teknekron Building	
	Address:	2145 Milvia Street
	Square Footage:	34,000
	F.A.R.:	--
	Description:	7-story office building for Teknekron Electronic Systems Corporation
	Developer/Owner:	Toltec Development Offices
	Current Status:	Building recently completed (1984)

Table 1, **continued**
DOWNTOWN DEVELOPMENT: PROPOSED, APPROVED, UNDER CONSTRUCTION, OR RECENTLY COMPLETED (See Figure 17)

Fig. 17 Ref.		
	Recently Completed, continued	
12	Merrill Lynch Building	
	Address:	2001 Addison Street
	Square Footage:	28,970
	F.A.R.:	--
	Description:	3-story office building
	Developer/Owner:	G&M Development Corporation
	Current Status:	Building recently completed (1985)
13	The Tepping Realty Building/University Gardens	
	Address:	1918 University Avenue
	Square Footage:	22,350
	F.A.R.:	--
	Description:	4-story office building
	Developer/Owner:	Tepping Realty
	Current Status:	Building recently completed (1985)

* University projects recently completed, under construction, or proposed are not included in this particular "downtown list," although the new Bio-Chemistry Annex proposed for a campus site near the downtown is shown on Figure 17. This project, and other current and proposed U.C. expansion projects, are included in later sections of this report which address cumulative traffic, noise, and air quality impacts.



NUMBERS CORRESPOND TO TABLE 1

PROPOSED (1, 2, & 3)

APPROVED OR
UNDER CONSTRUCTION (4, 5, 6, 7, & 8)

RECENTLY
COMPLETED (9, 10, 11, 12, & 13)

A = UC BIOCHEMISTRY ANNEX

NOT SHOWN ON THIS MAP: OTHER UC EXPANSION PROJECTS INCLUDING THE LIFE SCIENCES BUILDING AND ADDITION OFF OF CROSS CAMPUS ROAD (CONNECTS W/HEARST AND OXFORD), AND THE CORY HALL ADDITION ON HEARST AVENUE.

FIGURE 17

DOWNTOWN DEVELOPMENT: PROPOSED, APPROVED, UNDER CONSTRUCTION, OR RECENTLY COMPLETED

square-foot University Hall Addition would not add to the private office inventory.) The total 1984–1987 office space increment associated with these projects (excluding the University Hall annex) is approximately 465,000 square feet. The Golden Bear project (136,000 square feet of office) accounts for 30 percent of this total.

b. Land Use Impacts

(1) Compatibility with Neighboring Land Uses. The proposed project would have significant direct land use impacts on the adjacent photo studio and the two neighboring apartment buildings. Wall separations between the Courtney Building and two sides of the neighboring photo studio would be 10 feet (side) and 8 feet (rear). A portion of the rear wall of the Courtney Building would also be 18 inches from the side of the existing 5-unit apartment house at 2121–2123 Durant,* totally shielding two sets of east-facing windows. The project would result in a number of adverse impacts on these adjacent uses including major incongruities in building scale, view blockages, noise and air quality impacts (garage access drive and exhaust duct) and year-round shadow impacts. These various effects are further described in this report under related subject headings.

The Courtney Building would also result in adverse land use impacts on the existing 8-unit apartment north of the project on Bancroft (2126 Bancroft). Although the wall separation between the project and this building would be 35 feet, adverse land use conflicts would still occur, including winter shadow impacts and ongoing air quality impacts (garage exhaust fan) which are further described under related subject headings of this report.

The project would be generally compatible with other land uses in the project vicinity, including the Pacific Telephone building, the EBMUD building, the Hibernia Bank Building, the Maggini Chevrolet complex, the California First Bank building, and the IOOF Building. Project design relationship to some of these buildings are described in this chapter under URBAN DESIGN AND VISUAL FACTORS.

(2) Zoning Consistency. The project as proposed would be consistent with the intent and purpose of the C-2 zone. A Use Permit and associated Design Review procedures would be required, as set forth in the interim C-2 regulations.

(3) Effects on Overall Land Use Pattern in Project Vicinity. Conversion of the existing parking lot on the project site to a 6-story office building would increase the development intensity of the block to a level more consistent with other downtown blocks along Fulton and Oxford Streets between Bancroft and University Avenue. The project would provide a key "infill" element, as recommended along this edge of the downtown in the West Side Study. The proposed project would raise the development intensity of this block from a current aggregate FAR figure of 0.90 to 1.63, a level more consistent with all other Fulton-Oxford blocks to the north (1.50, 1.61, 1.53, 1.15 and 1.91).

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* Four of the five units are currently unoccupied.

(4) Relationship to Current Land Use Trends. The project would add significantly to the growing prominence of office development as the predominant downtown use. In 1984, office development accounted for 35 percent of downtown built floor space. The addition of new office construction recently approved, recently completed, or now under way would increase the office portion to around 45 percent; the addition of the proposed Courtney Building would raise the portion to 49 percent.

(5) Potential Spillover Effects. The proposed project, in combination with other local factors, could be expected to substantially increase interest in, and pressures for, similar intensification of other "underutilized" properties to the north along Fulton Street and Oxford Street. Construction of a six-story office commercial building on the project site could also be expected to generate strong interest in an adaptive commercial use of the landmark Howard Automobile Company (Maggini Chevrolet) on the opposing corner of Durant and Fulton. Another factor eventually contributing to these "spillover" pressures may be future university interest in implementing intensive residential-commercial development on nearby underutilized university-owned land to the east between Durant and Bancroft (the West Side Study suggested such intensification of these lands which are now used as parking lots and tennis courts).

Finally, uses all along the south side of Durant opposite the site are auto sales and service oriented (Maggini Chevrolet). A major downtown auto dealership recently gave up its lease to the Golden Bear site prior to intensification of that property. Pressures for a similar conversion of the Maggini Chevrolet space to the kinds of C-1 uses which would benefit from the growing downtown employee population and the nearby student population could be expected with construction of the Courtney Building.

c. Project Relationship to Current and Evolving Land Use Policies

(1) Current and Evolving Policies. The **Berkeley Master Plan** was adopted by the Berkeley City Council in June of 1977 to document city policies for future development, both short and long range. The project site is located within the Plan's "Central District" land use classification. Those Berkeley Master Plan goals and objectives which seem particularly relevant to the proposed Courtney Building and to downtown land use in general are summarized below:

- Preserve the unique character of the city resulting from its amenities and its diverse population (Goal #1, p. 5).

- Enable all residents to obtain decent housing, suitable employment, needed public services, recreational and cultural facilities, and essential goods and services (Goal #2, p. 5).

- Preserve the city's regional roles as a fine residential community, and as an educational, cultural, professional, and recreational center for the Bay Area (Goal #3, p. 5).

- Improve the city's financial position by fostering opportunities for appropriate economic development (Goal #5, p. 5).

- Recognize the distinct functions of four types of commercial areas with appropriate land use controls for each type including . . . the Central District (defined as a "diverse center of commerce, government, and cultural activities for Berkeley") (Policy 1.20).

- Encourage commercial activities serving a regional market to locate in the Central District or a commercial service district (Policy 1.21).

A more detailed policy framework for the downtown, the **"Downtown Plan,"** is currently being prepared by city staff and the Downtown Plan Committee of the Planning Commission. Although plan policy formulation remains incomplete as of this writing, preliminary goals and policies related to land use developed by the Committee are summarized below. Many of these goals and policies may be revised or eliminated and others added. The purpose of the summary below is to provide a preliminary basis for evaluating Courtney Building relationships to downtown land use goals, since some of these goals and objectives may become effective (i.e., may be adopted) while project development review is still underway:

- Protect adjacent residential neighborhoods by containing downtown growth and scaling down development at the periphery of the downtown.

- Reinforce the downtown as the dominant commercial center in Berkeley.

- Provide a mix of mutually supportive business activities in the downtown.

- Attract high diversity mixed use development (retail/office) residential in the downtown.

- Create a successful shopping environment in the downtown.

- Retail, certain types of commercial services, restaurants, and other public functions are encouraged as ground floor uses.

In addition to these evolving city policies for the downtown, the University in 1982 commissioned an urban design consultant to prepare the University of California West Side Study which examines ways to achieve a mutually supportive functional and visual relationship between the university and the downtown. Although the recommendations developed in this study were not adopted by the university or officially accepted as university policy, they included the following suggestions relevant to the proposed project:

- Encourage and accommodate the expansion of office and research-related uses in the downtown.

- Encourage commercial, entertainment, and food service functions in the central area to help enliven the downtown during both day and night.

(2) Project Relationships to Current and Evolving Policies. The proposed project would contribute both directly and indirectly to **Berkeley Master Plan** goals with respect to providing "suitable employment" and preservation of the city as a regional professional center (see section IV.C.1.b of this report). The project would also help "to improve the city's financial position by fostering opportunities for appropriate economic development" (see section IV.E.8.d), and appears to be consistent with the Master Plan policy to encourage region-serving commercial activities in the Central District.

Project-related additions to local housing demands, in combination with other cumulative employment growth in the city, could be expected to exacerbate, rather than improve, the city's housing availability and affordability problems (see section IV.C.2.b of this report). On the other hand, the positive fiscal impact of these office and other employment-generating uses on city revenues would contribute to the city's overall economic health (see section IV.E.8.d of this report).

The project appears to be consistent with evolving **Downtown Plan** goals (preliminary) with respect to reinforcing the downtown as the dominant commercial center; encouraging retail, restaurants and other commercial services on the ground floor; providing a mix of mutually supportive uses in the downtown; and attracting high density mixed use development (although if the latter goal is also intended to encourage high density residential use in the downtown, the project would not directly serve this end). The project also appears to be consistent with the unofficial West Side Study land use recommendations regarding accommodating expanded office activities and encouraging commercial and food service functions in the central area.

d. Mitigation Measures--Land Use

(1) Land Use Conflicts with Adjacent Uses. Land Use conflicts with the adjacent photo studio and 5-unit apartment building* on Durant could be partially reduced by eliminating the potential noise and air quality impact associated with the garage exhaust duct, and by increasing the wall separation between the apartment building and the project. Due to the substantial difference in scale between the project and these neighboring structures (see Figures 19 and 20), extensive project setbacks and height reductions would be necessary to substantially mitigate land use conflicts, with severe implications for the viability of the project. A modification of the portion of the Courtney Building footprint nearest the 5-unit apartment building to increase the wall separation from 18 inches, as currently proposed, to 5 or 10 feet, would provide added space to capture indirect light (and air), and would thereby reduce the severity of project adverse impacts on the livability of the two affected apartment units.

(2) "Spillover" Effects. Project-induced pressures to intensify land uses on nearby lands outside the C-2 area, such as a future adaptive use of the Maggini Chevrolet (Howard Automobile Company) landmark building, would be mitigated (limited in their intensity) by the proposed rezoning of the area to C-1. Approval of the

* Four of the five units are currently unoccupied.

project would increase the need for this rezoning measure, in order to contain the downtown and limit downtown impacts on neighboring areas.

2. URBAN DESIGN AND VISUAL FACTORS

a. Existing Setting

(1) Adjacent and Nearby Structures. Existing structures adjacent to the project site, including the photo studio, the 5-unit apartment, and the 8-unit apartment, are all highly vulnerable to adverse visual impacts from development of the project site due to their comparatively small building and lot sizes in relationship to the maximum building height and bulk allowable in a C-2 zone.

The Howard Automobile Company building (Maggini Chevrolet) across Durant from the project site at Fulton Street is recognized as having special architectural and historic merit (BAHA landmarks list and State Historic Resources Inventory List). The building, which is shown on Figures 13, 19, and 26 (photograph), is a valued local feature which warrants special recognition in designing any C-2 structure for the opposite side of the street (the project site). Similarly, the IOOF Building north of the project site on Fulton is a prominent architectural landmark which also warrants special recognition in designing a structure for the Courtney site. Like the Howard Automobile Company Building, the IOOF Building (Odd Fellows Hall) has been identified as a city landmark by the BAHA and is listed on the State Historic Resources Inventory. The IOOF Building is shown on Figures 19 and 24 (photograph).

The Pacific Telephone Building is one of the most conspicuous building forms in the southeast area of the downtown. Its massive, blank side walls extend as prominent four-story masses through the block from Durant to Bancroft (see Figures 13, 19, 20, 22, and 28 (photograph)). The lack of fenestration or other architectural interest on the east-facing wall results in an adverse and distractive visual effect.

Other prominent structures in the project vicinity that would warrant special design considerations in the design of nearby structures are the Hibernia Bank building on the opposite side of Fulton Street, and the California First Bank on the corner of Durant and Shattuck. The relationship of these two existing bank buildings to the project site is shown on Figures 13 and 19. The California First Bank is also pictured on Figure 28.

(2) Local Streetscape and Pedestrian Environment. The quality of the streetscape along Fulton Street and Durant Avenue is affected by a number of factors including street width, traffic speeds, the level of pedestrian activity, the intensity of building frontages, the number of building entrances and windows, landscaping treatments, and building setbacks. The Fulton streetscape is currently weakened by land underutilization including substantial voids in the street facade, and by inconsistent and poorly maintained landscaping. The West Side Study recommends that future C-2 development be directed to key infill sites along Fulton and Oxford to improve the definition of this important downtown edge.

The Circulation section of this report indicates that pedestrian flows along the Fulton and Durant frontages are low in comparison to other central area streets. Factors which may contribute to low levels of pedestrian activity are the low frequency of pedestrian-oriented trade activities along the Fulton-Oxford frontage, the substantial width and high traffic speeds of Oxford Street (which make pedestrian crossings difficult), and the general pattern of university-downtown pedestrian flows which occur at much higher levels along east-west streets north of the project (Allston Way, Center Street, Addison Street, University Avenue, and Berkeley Way).

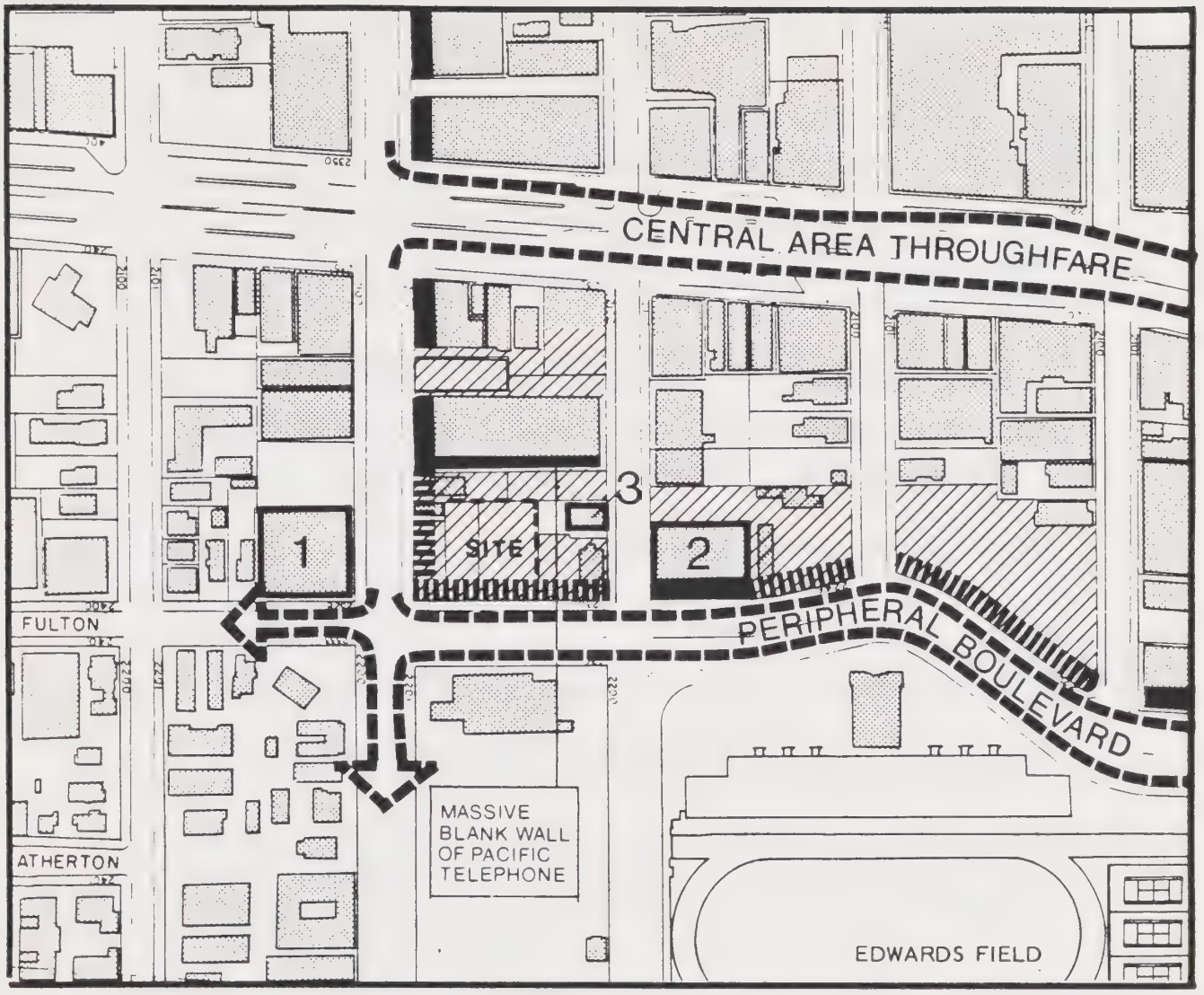
(3) Urban Form. The downtown area as a whole is visually distinct from other areas of Berkeley. Like many similar downtowns, the land use pattern in downtown Berkeley includes a ground-floor emphasis on trade activities. Since the early 1900s, development in the core has occurred in "zero lot line" fashion to maximize development intensity, with contiguous buildings creating continuous street walls along major streets. This intensive "street wall" effect, in combination with relatively high floor area ratios (see Figure 16), clearly distinguishes the central area from the rest of Berkeley, and provides its distinct "downtown" character.

Figure 18 diagrams urban form characteristics in the project vicinity. As shown on the diagram, one of the principal urban design weaknesses in the area is the poorly defined urban edge. The principal peripheral element now marking the southeast boundary of the downtown is Oxford Street. Its alignment, width, and traffic speeds create a separator between the downtown and the university. Otherwise, this edge is weakened by discontinuous building frontages, numerous parking lots, open areas, other low-utilization uses, and inconsistent street tree planting.

The West Side Study indicated that much of the frontage along Fulton and Oxford south of University Avenue is "significantly underutilized" and highly susceptible to change. This condition is also diagrammed on Figure 18. The Study recommended that development be directed to key infill sites along this Fulton/Oxford Street frontage to create the street wall effect indicative of other downtown streets, in order to strengthen the definition of the downtown edge. The Study also recommended a formal street landscaping treatment along Fulton and Oxford to further define and enhance this important edge.

b. Evolving Downtown Urban Design Guidelines

A detailed set of urban design criteria for the downtown will be included in the Downtown Plan, now being prepared by city staff and the Downtown Plan Advisory Committee. In addition, the city is formulating a set of detailed Design Guidelines for application to all future commercial uses in the downtown. Although both the plan and the guidelines are incomplete at this writing, relevant preliminary goals, objectives and criteria developed to date are summarized below. Some of these goals and criteria may be revised or eliminated, and other standards may be added. In any event, the sampling below is provided for use in evaluating the relationship of the Courtney Building design to evolving city policies which may be in effect before completion of project design review:



STRONG DOWNTOWN EDGE

WEAK, POORLY-DEFINED DOWNTOWN EDGE
Significant breaks in land use pattern and street edge

BUILDING FOOTPRINTS

LANDS ON DOWNTOWN EDGE IDENTIFIED AS "UNDERUTILIZED"*

IDENTIFIED CITY LANDMARKS

1 Maggini Chevrolet (old Howard Automobile Co. building)
2140 Durant Avenue

2 Odd Fellows Temple
2288 Fulton Street

3 Waste and Clark Apartments
2126 Bancroft Way

*University of California West Side Study, Consultant Recommendations; Sedway/Cooke

FIGURE 18
URBAN DESIGN FACTORS -- PROJECT VICINITY

Preliminary Goals of the Downtown Plan Subcommittee*:

- Improve the image and physical environment of the Downtown;
- Create a physical environment in the downtown that is conducive to healthy economic activity;
- Create a pleasant experience for pedestrians in the downtown;
- Encourage ground floor uses in the downtown to be publicly accessible;
- Encourage pedestrian-oriented activities at ground level;
- Provide for visual interest at the street level;
- Provide amenities for pedestrians, including benches and some natural features;
- Improve the appearance of existing landscaped areas along public rights-of-way;
- Maximize solar access to sidewalks;
- Define major downtown entry points and key intersections;
- Define entries to the downtown by land use, special features and building guidelines.

Preliminary Design Review Guidelines prepared by city staff:**

- Building footprints should include interesting corners and spaces that can be used by pedestrians, minimize visual intrusion into adjacent buildings, and provide visual interest.
- Solar access to adjacent buildings during winter months should be retained through building setbacks and height controls when necessary.
- Views from existing buildings should be retained whenever possible through use of setbacks, proper orientation, and height controls for new buildings.
- Street facades should include elements of three dimensional interest.
- Where possible, walls should be designed to allow a sitting area for pedestrians and space for landscaping and artwork.

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* List represents preliminary list as of September 1985. The list has not been formally adopted by the Subcommittee and is subject to change.
** List is preliminary (has not been adopted by the city) and is subject to change.

- Design elements such as cornice lines, eaves, window shapes, and setbacks of adjacent buildings should be echoed, when appropriate, to improve harmony with the surroundings.

- The height of adjacent buildings should be considered in the design of new buildings. Such techniques as setbacks, terraces, artwork, and other design measures may be used to reduce the visual impacts of differing building heights.

- Building heights should respect the integrity of neighboring buildings.

- In the event that existing landscaping must be displaced or obscured, every effort should be made to replace it with new landscaping of equal or greater importance.

- Sidewalks should incorporate interesting paving materials to enrich the pedestrian environment.

- Public open areas are encouraged as a means of enlivening the pedestrian environment. Artwork, patios with benches, fountains, sitting areas and interior courtyards are encouraged.

- Building entrance points should be clearly defined and easily identifiable by pedestrians.

- Buildings on corner lots should be encouraged to incorporate a "cut-away" entrance to improve visibility and pedestrian circulation.

c. Urban Design and Visual Impacts

(1) Impacts on Adjacent and Nearby Structures. The physical relationship of the proposed project to adjacent and nearby buildings is illustrated by Figures 19 through 29. Despite the attempt to articulate the Courtney Building mass through varying setbacks, strong horizontal elements, and "bowed" walls, the new building would still be conspicuously out of scale with the adjacent photo studio and 5-unit apartment building on Durant. The footprint, height, and side setbacks of the Courtney Building, although in conformance with C-2 zone requirements, would create a feeling of extreme enclosure and would block views and solar access for these neighboring buildings to the west (see Figures 19 and 20). These existing small structures and lots would appear stunted and out-of-place in this setting, i.e., "sandwiched" between the Pacific Telephone and Courtney building masses. (The separation between the apartment building and the Courtney Building would be 18 inches.)

The 8-unit apartment building on Bancroft would also be stunted and semi-enclosed by the combination of the new Courtney Building and the existing Telephone Building, but these impacts would be much less in degree due to the greater size of this apartment structure (60 feet height) and its greater separation from the project (35 feet--see Figures 19 and 20).

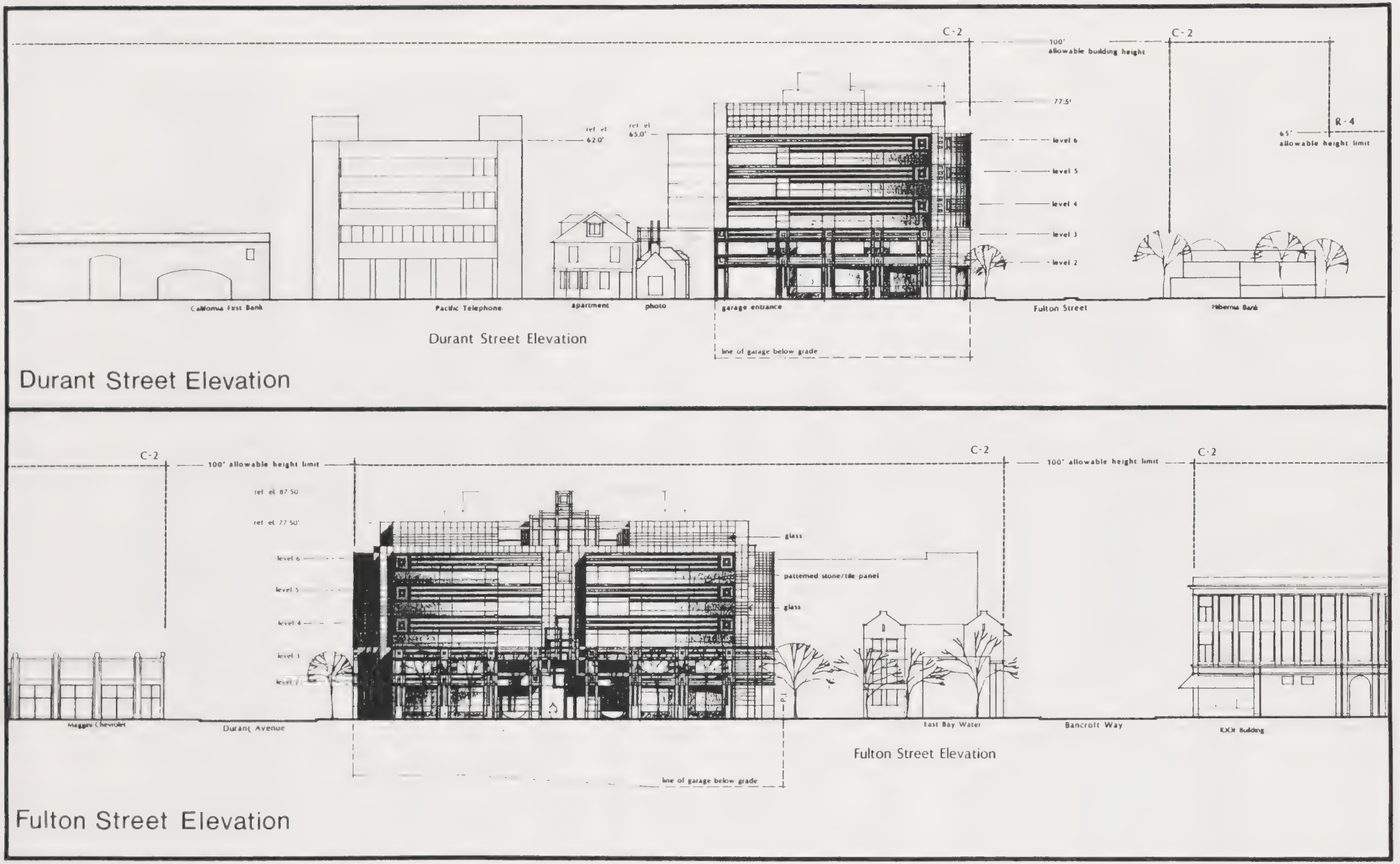

FIGURE 19

PROPOSED BUILDING ELEVATIONS

SOURCE: Kaplan McLaughlin Diaz for the applicant.

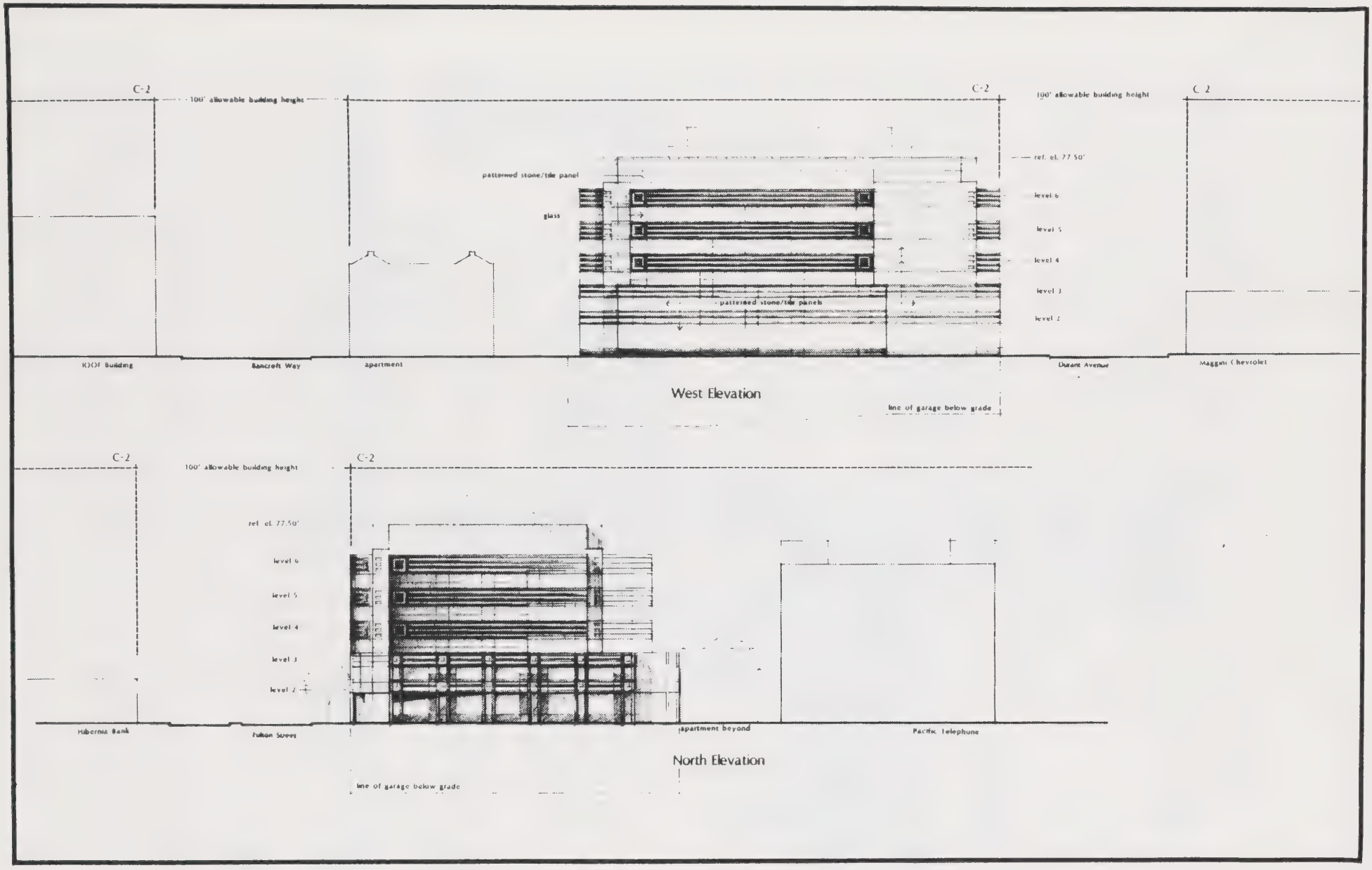

FIGURE 20

PROPOSED BUILDING ELEVATIONS

SOURCE: Kaplan McLaughlin Diaz for the applicant.

Figures 19 and 20 also indicate how the two principal elements of the Courtney Building form, the two-story "base" and the four-story "body," would relate visually to the heights of the major buildings in the project vicinity. The 77'-6" high body would relate visually to the nearby Pacific Telephone Building. The horizontal lines or "stripes" on the proposed building sides would articulate each level and would also echo the horizontal elements of the Telephone Building. The horizontal stripes would also relate to a lesser degree to horizontal elements in the nearby IOOF Building. The two story "base" of the Courtney Building would relate in height to the landmark Maggini Chevrolet Building on the opposite side of Durant, and to the California First Bank west on Durant.

These height relationships, in combination with the proposed "zero" setbacks of the project base along Durant and Fulton, would correspond closely to the three principal existing building frontages in the area--the California First Bank building, the Pacific Telephone Building, and the IOOF Building (see Figures 25 and 29). These height and setback relationships would also serve to reinforce the edge or "wall" effect at the southeast boundary of the downtown area as recommended in the West Side Study.

The proposed Courtney Building design would also reduce the adverse impacts of the Telephone Building east wall on this edge of the downtown. With the new six-story Courtney structure located between the Telephone Building and Fulton Street, the east wall of the Telephone Building would be reduced to a background element.

(2) Impacts on Streetscape. Depending upon the nature of the ground-floor tenants, the project could provide a destination which would increase pedestrian activity and the overall sense of viability at this corner of the downtown. The proposed ground-floor commercial uses, with separate entrances to the street, would provide a visual extension of the public area and a stronger relationship to the street and pedestrian passers-by.

The building's pedestrian-level design treatment, as described by the applicant's architect and illustrated on Figure 21, would incorporate a mix of architectural detailing oriented to the street level. These treatments, in combination with the faceted building corners, depressed entrance area, entrance planters, colonnades, varying sidewalk paving pattern, and street trees, would provide visual interest at the street level for pedestrians.

As illustrated by the architect's isometric drawing (Figure 22) and the ground floor plan (Figure 7), the proposed building indentation and sidewalk treatment on Fulton Street would make the **building entrance** clearly identifiable and, in effect, would extend public (sidewalk) territory and provide a sheltered area for pedestrians during rains.

Beyond these architectural treatments and Fulton Street entrance features, no additional pedestrian amenities (sitting areas, etc.) are indicated on the project ground-floor plan.

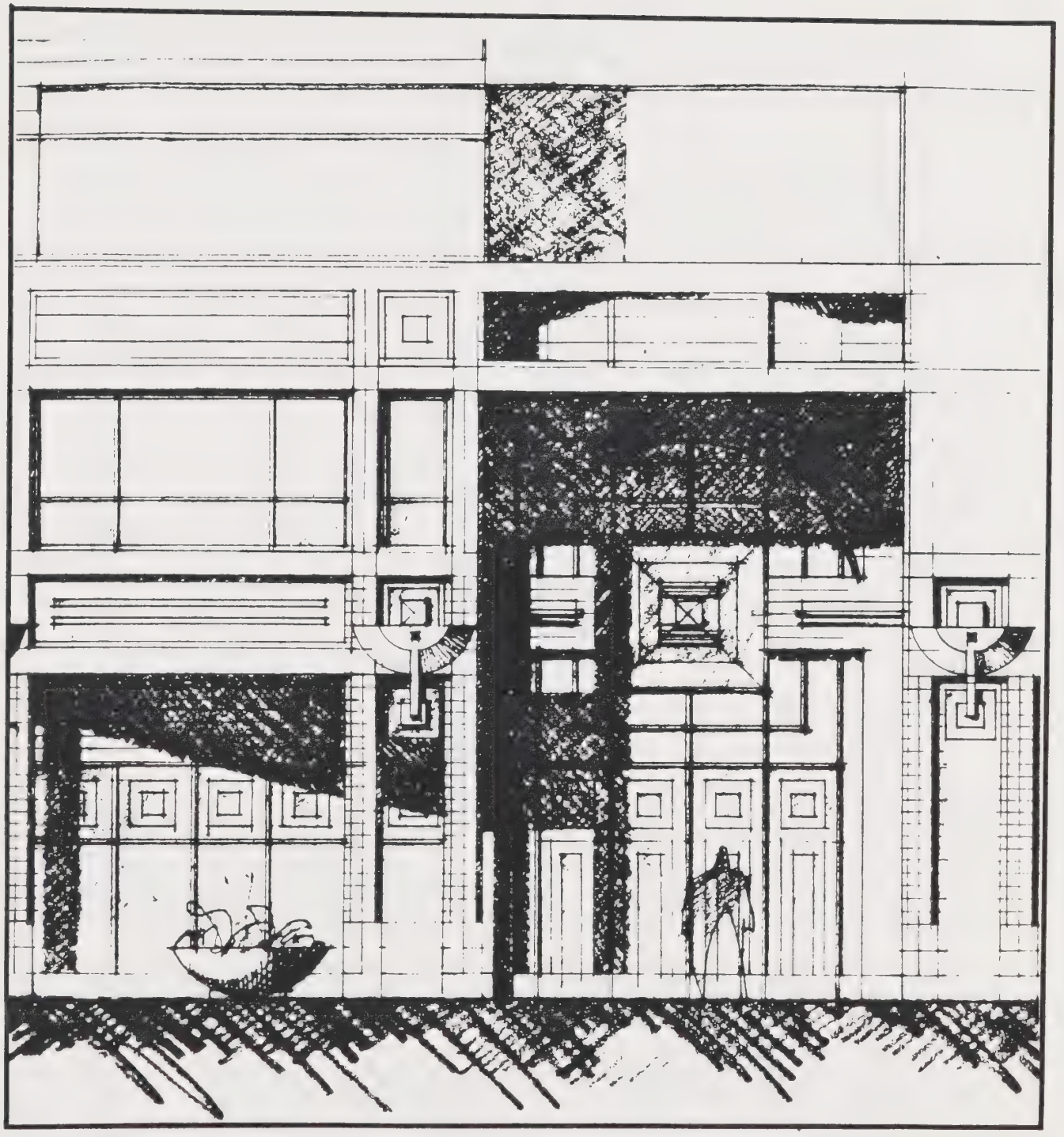

FIGURE 21
PROPOSED DETAIL AT PEDESTRIAN LEVEL

SOURCE: Kaplan McLaughlin Diaz for the applicant.

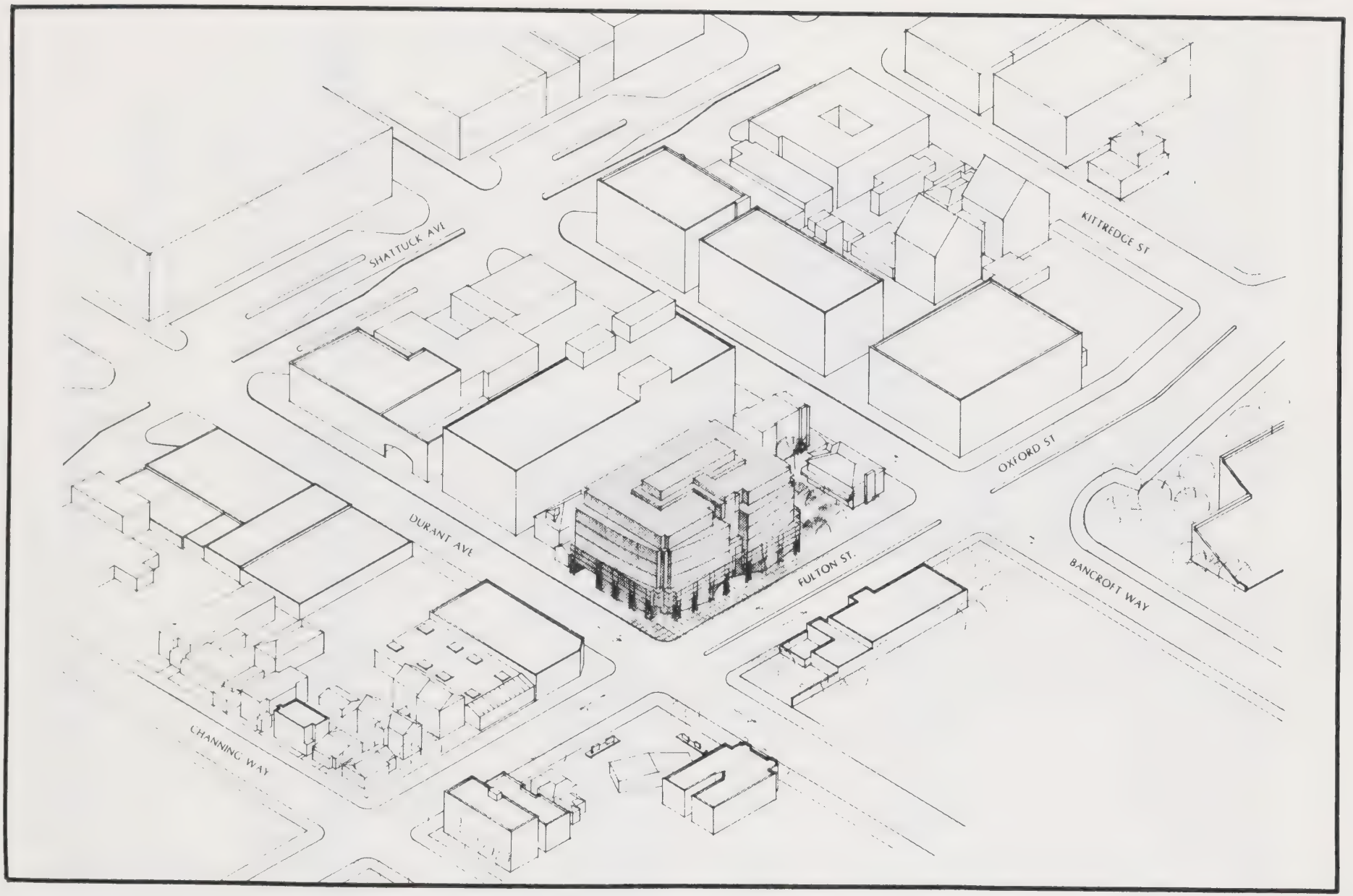

FIGURE 22
ISOMETRIC VIEW OF PROPOSED PROJECT AND VICINITY

north ↗

SOURCE: Kaplan McLaughlin Diaz for the applicant.

On the project's Durant Avenue frontage, no pedestrian entrances to ground-floor uses are proposed. The lack of any additional pedestrian entrances on this relatively inactive street would contribute to the low level of current pedestrian activity.

The project landscaping plan would include the removal of the existing three trees (which vary in species and size) and replacement with a formal tree row and tree grates along both the Fulton and Durant frontages of the project. Although these new street trees would enhance the corner and serve needs to strengthen perception of the downtown edge along Fulton and Durant, the abrupt end of these tree rows at the project property line could create a feeling of visual discontinuity.

(3) Impacts on Views from Approaching Streets and Uphill Neighborhoods. The photo-simulations on Figures 24–30 show project impacts on the visual character of fronting streetscapes, on the local skyline, and on distant views of the downtown from uphill neighborhoods. The simulations indicate that the most significant visual impacts would be on the northbound view towards the downtown from Fulton Street. The existing view from this approach is shown on Figure 26. As shown on Figure 27, introduction of the proposed Courtney Building would introduce a dramatic change in this view. The mass of the Courtney Building would contrast dramatically with the scale of existing buildings in this approach block, creating a strong identification of the downtown edge. (Figure 27 also illustrates the relationship of the two-story building base to the Maggini Chevrolet Building).

The other simulations on Figures 25 and 29 illustrate the project's visual "infill" effects in reinforcing the downtown edge. These two illustrations also show how the articulation of project masses would visually relate to the IOOF Building (Figure 25) and the California First Bank building (Figure 29).

The project's impact on distant views over the downtown from the Berkeley Hills is simulated on Figure 30. The project location is now marked in this view by the large blank side wall of the Pacific Telephone Building. The Courtney Building would shield the Telephone Building wall from view, and would be slightly higher and slightly more prominent in this uphill view. The project would also be a much more interesting visual element than the side wall of the Telephone Building.

(4) Project Urban Form and Height Relationships. Project height and FAR relationships to other larger buildings in the downtown are shown in Table 2. The proposed building height at 77.5 feet (six stories) is less than the maximum currently allowed. The city's C-2 zoning regulations permit building heights up to 100 feet (eight stories). Most buildings in downtown Berkeley are between two and five stories. There are also two highrises in the downtown (ten or more stories), and a number of midrise structures (five to ten stories).

As explained earlier, the height, bulk, and architecture of the Courtney Building would be in strong contrast to existing single-story development on the opposite side of Durant Avenue (Maggini Chevrolet frontages) and across Fulton Street (Hibernia Bank). The contrast is illustrated by Figures 22 (isometric) and 29 (photograph). As illustrated by these figures (particularly Figure 22) the Courtney Building design would have a distinct infilling effect, visually reinforcing the Ful-

Table 2
FLOOR AREA RATIO COMPARISON: PROJECT VS. OTHER DOWNTOWN OFFICE BUILDINGS

Building	Floor Area Ratio	Height
Wells Fargo Shattuck @ Center	--	12
Berkeley Towers 2120 University Avenue	--	7
Teknekron Building 2145 Milvia Street	--	7
City Center Hotel and Convention Center 2050 Center Street	5.87	--
ELS Building 2030 Addison Street	5.65	7
Courtney Building **2308 Fulton Street**	**4.67**	**5**
Berkeley Commercial Realty Building 2150 Kittredge Avenue	3.55	5
Golden Bear Building University @ Milvia	2.98	5
Oxford House Condominiums 1899 Oxford Street	2.19	6

SOURCE: Wagstaff and Brady.

ton/Durant edge of the downtown. The height and bulk of the project, relative to nearby buildings and to the adjacent street widths, would also create a distinct landmark element defining a key downtown intersection and entrypoint, i.e., the "corner" of the downtown.

(5) Project Shadow Impacts. Figures 31 through 34 illustrate the shadow patterns which would be cast by the proposed building on the longest and shortest days of the year. The figures indicate that in the summer months the neighboring photo studio and 5-unit apartment* on Durant would be totally shaded by the project until midday, and by the Telephone Building in the late afternoon. The segment of the east wall of the 5-unit apartment which is now open to the project site parking lot would be totally blocked by the new building, as illustrated on Figure 32. Two of the five apartment units would be directly affected. These solar impacts, and the general visual impact of the Courtney Building's relative size and 18-inch wall separation, could be expected to reduce the rent potential of the two affected apartment units.

Figures 31 and 32 also illustrate project shadow impacts on the nearby 8-unit apartment building on Bancroft. The project would have no effect on this building's exposure to summer sun, but would shade all of the south wall and much of the east wall of the structure in the morning and early afternoon hours of winter. Six of the eight apartment units would be affected by this shadow impact.

c. Mitigation--Urban Design and Visual Impacts

(1) Shadow Impacts. Shadow impacts on the adjacent photo studio and 5-unit apartment building west of the project on Durant could be reduced by increasing Courtney Building setbacks. Due to the substantial difference in heights between the project and these neighboring buildings, extensive project setbacks and height reductions would be necessary to fully mitigate visual and solar impacts, with severe implications for the viability of the proposed project (see Figure 19). A modification of the Courtney Building footprint nearest the 5-unit apartment to increase the wall separation between the two structures from 18 inches, as currently proposed, to 5 feet, would provide space to capture indirect light (and air), and would reduce the severity of project adverse impacts on the livability of the two affected apartment units.

(2) Pedestrian Provisions. Although the level of pedestrian activity at this location may not warrant major investment in pedestrian-oriented provisions (arcades, fountain, etc.), incorporation of artwork and/or a sitting area into the exterior scheme would further improve the pedestrian environment.

(3) Street Landscaping. The proposed street trees along the project's Fulton and Durant Avenue frontages would serve to enhance this downtown edge. Through developer-city cooperation, these new trees could become an initial phase of a coordinated landscaping treatment extending from the corner down Fulton and Oxford to Hearst, and down Durant to Shattuck. (The city's Department of Public Works provides standards and issues permits for street trees.)

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* Four of the five units are currently unoccupied.

FIGURE 23
SELECTED VIEWPOINT LOCATIONS
CORRESPONDS TO PHOTOGRAPHS AND SIMULATIONS OF FIGURES 24-30

FIGURE 24
VIEW 1. SOUTH FROM OXFORD ST. - BEFORE

FIGURE 25
VIEW 1. SOUTH FROM OXFORD ST.-AFTER

FIGURE 26
VIEW 2. NORTH FROM FULTON ST. - BEFORE

FIGURE 27
VIEW 2. NORTH FROM FULTON ST.-AFTER

FIGURE 28
VIEW 3. EAST FROM SHATTUCK AT DURANT-BEFORE

FIGURE 29
VIEW 3. EAST FROM SHATTUCK AT DURANT - AFTER

FIGURE 30
VIEW 4. DISTANT VIEW FROM BERKELEY HILLS

SHADOW IMPACTS

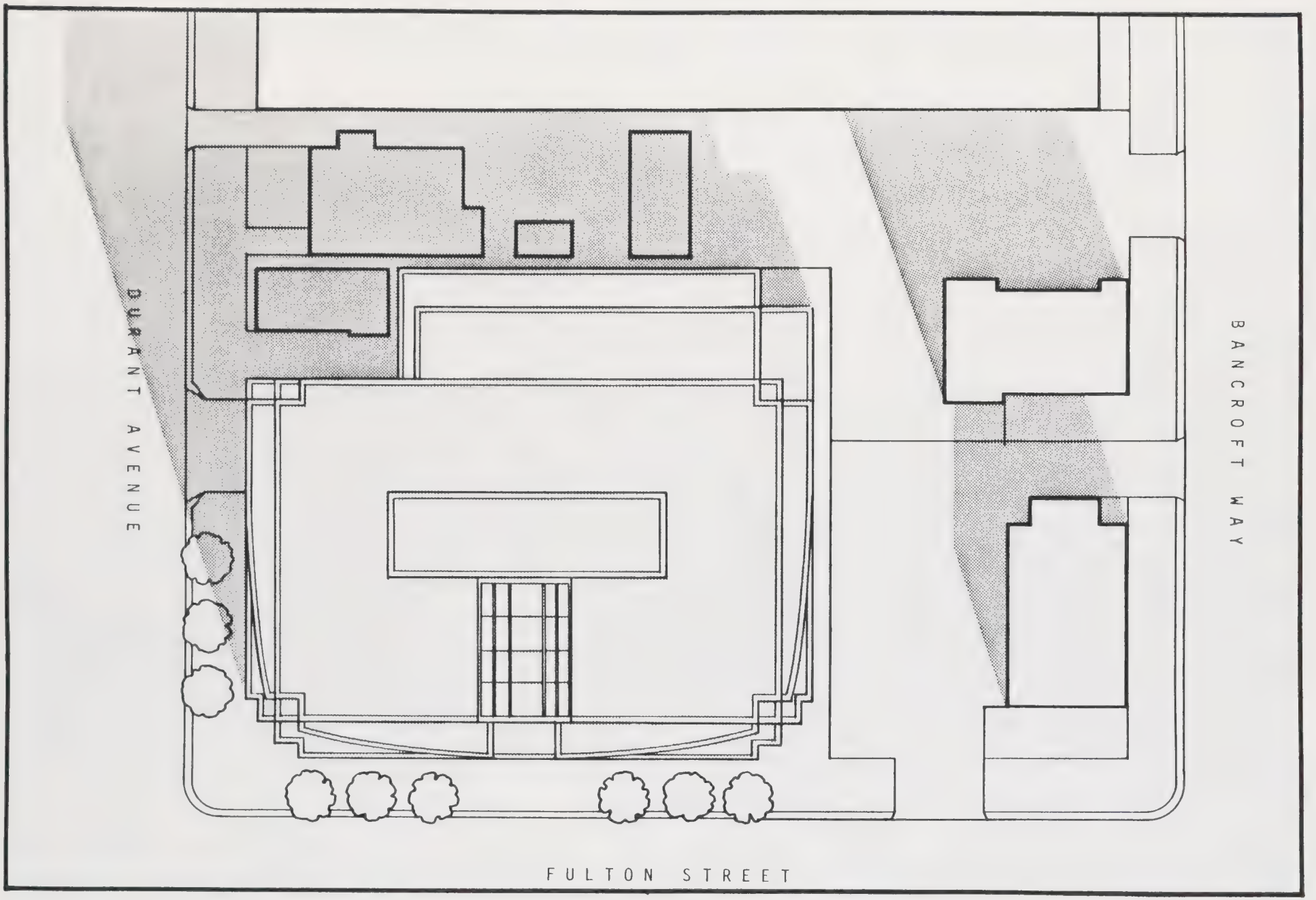


FIGURE 31

SHADOW PATTERN - JUNE 21

SHADOWS TAKEN: LONGEST DAY - JUNE 21, 6:00 A.M. DARKEST VALUE

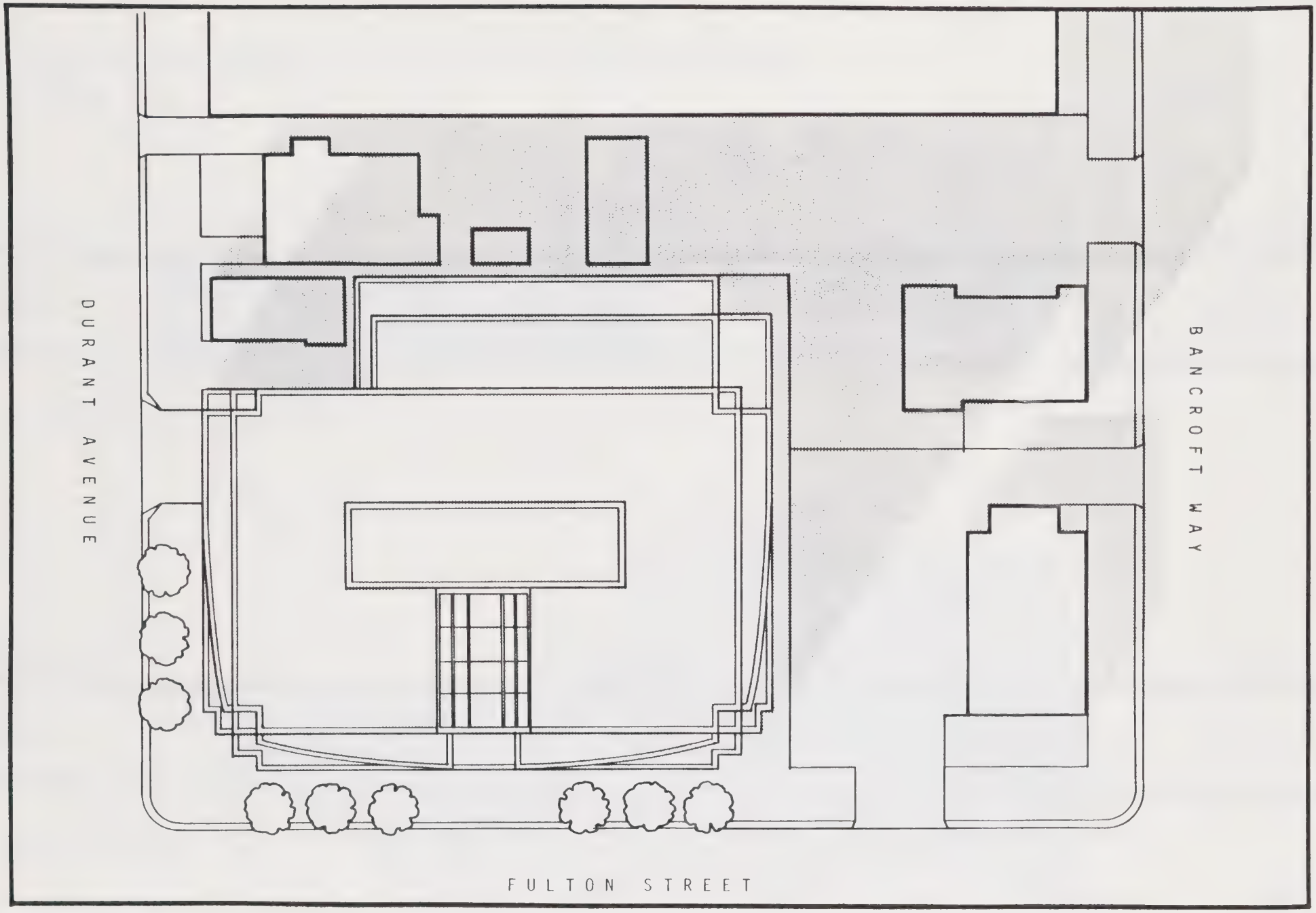
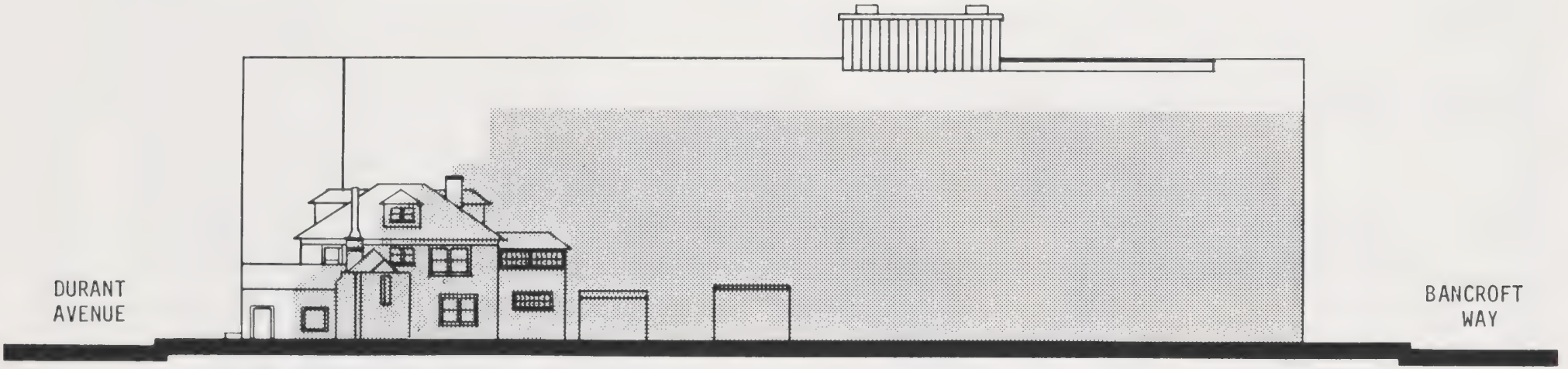
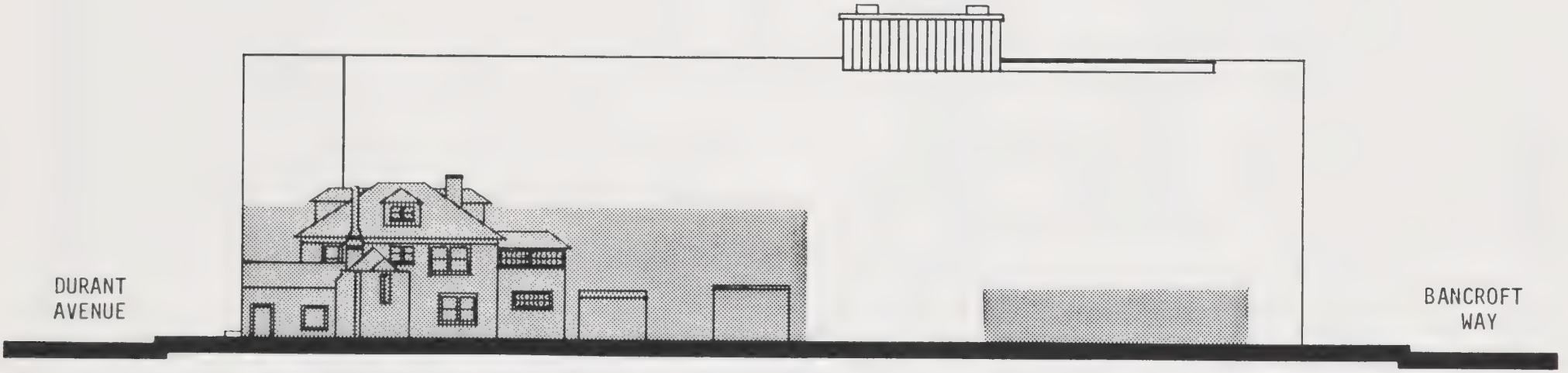


FIGURE 32

SHADOW PATTERN - DECEMBER 21 SHADOWS TAKEN: SHORTEST DAY - DEC. 21, 8:00 A.M. MEDIUM VALUE



SHADOWS TAKEN: SHORTEST DAY - DEC. 21, 8:00 A.M. MEDIUM VALUE



SHADOWS TAKEN: LONGEST DAY - JUNE 21, 6:00 A.M. DARKEST VALUE

FIGURE 33
SHADOW PATTERN ON WESTERLY NEIGHBORS

SHADOWS TAKEN: SHORTEST DAY - DEC. 21, 8:00 A.M. MEDIUM VALUE

SHADOWS TAKEN: LONGEST DAY - JUNE 21, 6:00 A.M. DARKEST VALUE

FIGURE 34
SHADOW PATTERN ON EASTERLY NEIGHBORS

B. MARKET FACTORS

1. INTRODUCTION

This section describes current office market conditions in the subregion and Berkeley downtown, and comments generally on the market outlook for the proposed project. The project and other recent downtown office development proposals have raised questions regarding whether office demand expectations are adequate to sustain the amount of cumulative office development occurring in the downtown and elsewhere in the East Bay, and more specifically, whether new office concentrations proposed for the Berkeley waterfront would have a significant adverse impact on demands for project and other downtown office space.

2. REGIONAL OFFICE GROWTH TRENDS

This analysis concentrates on the primary office market from which future downtown development would capture most tenants. The primary market area within which the Berkeley downtown competes can be described as the north Alameda/central Contra Costa County or East Bay subregion of the Bay Area. Other principal Bay Area office development areas are San Francisco, the North Bay (Marin–Sonoma–Napa), the South Bay (San Mateo and Santa Clara counties), and the Solano County corridor. The East Bay subregion includes the Berkeley–Oakland area, Emeryville, Alameda, the I-680 corridor (Walnut Creek, Concord, Pleasant Hill, Lafayette, Martinez), the east Contra Costa County area (San Ramon–Pleasanton–Livermore) and southern Alameda County (Hayward–Union City–Fremont).

The East Bay subregion has experienced dramatic increases in office space over the past 10 years, including the following major recent developments:

a. Downtown Oakland

Downtown Oakland has averaged more than 400,000 square feet of office expansion per year between 1980 and 1984. Five new major office buildings have been recently completed, including Lake Merritt Plaza and the Webster Street Tower. The Oakland City Center project alone calls for up to 2 million square feet of additional office space.

b. Emeryville

Two large office buildings totalling 450,000 square feet have been constructed on the Emeryville marina since 1972. Current plans call for as much as one million additional square feet at this marina location. In addition, plans currently being finalized for the area east of I-80 are expected to call for an additional 4 to

5 million square feet of commercial and light industrial development. A large portion of this inventory will probably be office.

c. Alameda

The Harbor Bay Isle development in Alameda includes plans for a total of 7 million square feet of office space; 700,000 square feet have been built to date.

d. I-680 Corridor

The I-680 corridor in Contra Costa County (Walnut Creek, Pleasant Hill, Lafayette, Concord, Danville, Alamo, Martinez) has experienced dramatic growth with numerous new office projects underway or planned totalling more than 22.7 million square feet.*

e. South Bayshore

The so-called South Bayshore area, including the cities of San Leandro, Hayward, Union City, and Fremont, has experienced dramatic recent increases in the rate of business park development. The development emphasis in this area has been on research and development, light manufacturing, and distribution (warehousing) activities, rather than office space.

f. East Contra Costa County

Inventories currently being compiled by the Contra Costa County Department of Community Development indicate that office space currently under construction or planned in the fast-growing San Ramon–Pleasanton area totals 35.3 million square feet.* This total includes the Bishop Ranch Business Park (8.3 million additional square feet) and the Hacienda Business Park (11.6 million square feet).

ABAG population and employment projections indicate that East Bay office demands will continue to be very high. Regarding whether or not this much office expansion can be absorbed, the market overview completed for the Berkeley Waterfront Plan program concludes that "there are reasonable prospects that much of the announced development can be absorbed, at least over the next two decades"; and "these large projects . . . are sponsored by some of the most experienced and wealthy land developers (Aetna, Prudential, Santa Fe, Bass Brothers, Chevron) who possess resources and staying power."**

The question, then, is not <u>can</u> this large raw inventory of Bay Region office space be absorbed, but at what <u>rate</u> will it be absorbed. The McGuire report notes that office expansion has historically occurred in waves, with developers building as

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* Contra Costa County Community Development Department office space inventory totals as of October 1985.

** Chester C. McGuire, McGuire & Company, "Market Considerations and Fiscal Setting, Background Report for the Berkeley Waterfront Planning Process," January 1985; p. X-26.

long as lending is available. When strong signs of overbuilding become evident, lending subsides. During the ensuing months or years, the space is eventually absorbed. If the pace of absorption is substantially less than anticipated, rents may be adjusted and other concessions made, and the development program may ultimately become unsuccessful for the investors.

There are clear signs that such a leveling off may now be underway. It is the general consensus among Bay Region real estate professionals that most of these regional office areas have become significantly overbuilt with more office space coming on the market that cannot be quickly absorbed. As a result, office rents are levelling off and/or have been offset in the form of large developer concessions.

3. BERKELEY OFFICE GROWTH TRENDS

a. Employment Factors

The local market for office space is directly linked to growth in managerial, administrative, and service employment sectors. Over the past decade, city employment has shifted away from manufacturing and other non-office jobs towards the office-oriented service areas (see Section IV.C.1.a.3 of this report). There has also been local growth in new technical and clerical categories associated with computers, data and word processing, and laboratory research activities whose primary working environment is also office space.

b. Current Rate of Office Expansion

Table 3 lists the current downtown inventory of major office buildings. In mid-1985, there were approximately 806,200 square feet of floor space in 18 major* buildings. Another 166,400 square feet are approved or under construction, for a total of 972,644 square feet. The figures in Table 3 indicate that major office building expansion has increased to a 1983-to-1986 rate of around 140,000 to 150,000 square feet per year. Due to the limited inventory of remaining underdeveloped C-2 land in the central area, it is unlikely that this rate of office space expansion could be sustained over the long term.

The figures indicate that the relative rate of office development in downtown Berkeley has paralleled regional trends, although the total amount of growth has been small in comparison to other East Bay locations, and has not been indicative of a transformation of downtown Berkeley from its current community center role into a major, regional-scale commercial center.

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* The term "major buildings" in this report includes office-oriented structures of 14,000 square feet or greater.

Table 3
BERKELEY DOWNTOWN OFFICE BUILDING INVENTORY
Major Office Buildings in the Central Area

Status/Name	Date Built	Address	Office Space (sq.ft.)	Availability (sq.ft.) 12/84	6/85
Existing					
Wells Fargo	1928	2140 Shattuck	55,256	0	0
ETS	1947	1947 Center	102,283	0	0
Tioga	1956	2020 Milvia	36,790	2,600	10,059
Great Western	1970	2150 Shattuck	135,735	4,385	6,000
Berkeley Center	1920	2000 Center	37,725	0	0
Berkeley Tower	1983	2120 University	49,000	0	0
Addison Court	1984	1950 Addison	27,000	3,500	3,500
Teknekron	1984	2145 Milvia	34,000	0	0
Merrill Lynch	1984	2001 Addison	28,970	0	9,634
University Gardens	1985	1918 University	18,000	800	432
Berkeley Commercial Realty	1985	2150 Kittredge	20,000	--	1,320
Constitution Square	1985	2100 Shattuck	25,500	12,000	5,900
2121 Allston Way		2121 Allston Way	25,000	25,000	0
Mason-McDuffie			75,485	4,500	0
Cal Farm			74,500	0	3,600
2550 Shattuck		2550 Shattuck	14,000	0	0
University Walk			22,000	3,580	3,580
Teknekron			25,000	0	0
			806,244	56,365	44,025
			Vacancy Rate:	7.0	5.5
Approved or Under Construction					
ELS Building	--	2030 Addison	20,400	--	--
Berkeley Center		2050 Center	28,000	--	--
Golden Bear		University/Milvia	118,000		
Subtotal			166,400		
TOTAL			972,644		

SOURCE: Wagstaff and Brady compilation based on inventories from city staff, Coldwell-Banker, and the city's waterfront planning program.

c. Current Office Vacancy Rate

The figures in Table 3 indicate a healthy high-occupancy downtown Berkeley office market. The office vacancy rate is low, especially in comparison to downtown Oakland and other East Bay Office concentrations (see Table 4). The figures in Tables 3 and 4 also indicate that, unlike downtown Oakland and other East Bay office locations which are more oriented to the regional office market, the city of Berkeley has been experiencing a recent rate of new office construction which is commensurate with local expansion needs.

Table 4
VACANCY RATES--NORTHERN ALAMEDA AND EASTERN CONTRA COSTA COUNTIES (PERCENT)

	1980	1981	1982	1983	1984
Oakland	5.5	9.7	16.6	11.5	16.5
Oakland Airport	9.3	10.4	19.9	13.0	20.5
Emeryville	14.4	6.9	7.2	3.7	15.6
Berkeley	**3.4**	**6.0**	**12.0**	**5.7**	**9.8**
Richmond	--	0	18.4	7.2	10.7
Alameda	18.3	17.9	17.5	13.5	46.3
TOTAL	6.9	9.8	16.3	10.8	18.8

SOURCE: Coldwell Banker Commercial Real Estate Services, Oakland.

Table 3 indicates that, of the 806,244 square feet of primary downtown office space in early 1985, approximately 44,000 were available for lease, for a vacancy rate of around 5 percent. The figures also indicate that the vacancy rate has declined in the past 6 months. Data from Coldwell Banker's Commercial Real Estate Services Division in Oakland indicates that 50,000 square feet of office space was absorbed in the downtown in the 6-month period between December 1984 and June 1985.

4. FUTURE DOWNTOWN BERKELEY COMPETITIVENESS

a. Relationship to other East Bay Office Expansion Opportunities

Businesses seeking new office space in Alameda and Contra Costa County have many competing choices to consider, including:

Downtown Oakland
Oakland Airport
Alameda (Harbor Bay Isle)
Emeryville marina
Downtown Berkeley
Hilltop Mall
Walnut Creek–Pleasant Hill
San Ramon–Pleasanton
Emeryville (east of I-80)*
Berkeley waterfront*
Albany waterfront*

In a more local context, development of new office concentrations on the **Berkeley waterfront** may also compete with the downtown. The market study prepared for the Berkeley Waterfront Plan program indicated, however, that there would be a clear market distinction between the waterfront and the downtown. The waterfront, because of its direct freeway access, visual prominence, and separate identity, would attract office and other business development of a regional nature, while the downtown attracts a more focused, localized market interested in the specific advantages unique to that location. The downtown would have to become a major regional office and commercial center before development on the waterfront would become directly competitive or adversarial.

The pace of office growth in the downtown, even at the recent rate of 140,000 to 150,000 square feet per year, is not indicative of a transformation into a region-serving office center. Rather, this downtown growth rate is more in keeping with the kind of healthy, incremental growth and upgrading necessary to sustain a specialized local submarket attracted to specific amenities unique to the Berkeley central area. Office development on the Berkeley waterfront, rather than in the downtown, would be more likely to compete directly with the other region-oriented office areas described in this report, such as the Emeryville waterfront and marina, the Albany marina, Hilltop Mall, and perhaps Oakland.

Finally, with respect to the project itself, the timing of any substantial waterfront office development, if approved, may be 5 or 10 years off, while the Courtney Building is proposed for construction and full occupancy by 1987 or 1988.

b. Berkeley Downtown Advantages

The following factors have been cited by real estate professionals, planners, and economists as Berkeley downtown features which have been contributing to a healthy office market:

- An established and extensive office support sector including retail activity (business and personal specialties), business services (reproduction, banks,

* Anticipated future development areas.

accountants, etc.), personal services (cleaners, barbers, etc.), and proximity to a highly publicized selection of good restaurants;

- Proximity to the university, which is perceived as an important pool of talent, information, ideas, and technology important to particular office submarkets (high technology, research and development, and bio-tech firms; economic consultants, information systems, and data processing services, etc.);

- Good local and regional transit service; and

- Demands for expanded and modernized office areas by growing Berkeley companies that wish to remain in Berkeley.

c. Berkeley Downtown Disadvantages

The following factors have been cited as disadvantages of a Berkeley downtown office location:

- Difficult vehicular access to the local freeway system;

- Uncertainties in the private sector about the city's economic goals, and perceptions of a "negative business climate"; and

- Concern with proposals over the last decade for a local employee income tax and other special levies on commercial development.

Beyond consideration of these advantages and disadvantages is the fact that the downtown has been experiencing an office absorption rate of between 140,000 and 160,000 square feet per year over the past 3 years, a healthy rate for a community central core of Berkeley's size. Data for the past 6-month period indicates that this rate of office space absorption was continuing as of June 1985.

5. PROJECT ADVANTAGES AND DISADVANTAGES

The proposed Courtney Building would have the following market advantages and disadvantages with respect to its ability to capture a 15 to 20 percent share* of the city's downtown office absorption over the next 3 or 4 years:

Advantages

- Timing: the building is now in the development review stage and is scheduled for completion over the next 18 months;

- Appearance and identity: the scale and style of the building would be prominent and distinctive at this location;

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* The current absorption rate of 140,000 to 160,000 square feet per year over 3 or 4 years would total 420,000 to 640,000 square feet; 97,000 = 15 to 20 percent of this total.

- Size: with the exception of the Golden Bear project (118,000 square feet of office), the proposed project would be larger than the office components of other downtown projects recently approved or under construction (ELS Building, Berkeley Center) and thus may be one of the few modern buildings with adequate space for the large tenant;

- Vehicular access: the peripheral location of the project site and its off-street parking facility may provide better vehicular access than other office space choices in the downtown.

Disadvantages

- Location: the project's location on the edge of the downtown may be perceived as more remote and less convenient than other "closer-in" downtown office space choices; the project site is five blocks from the downtown Berkeley BART station;

- Surrounding uses: because the site is in a fringe area of relatively light pedestrian volumes and low-activity buildings (auto sales and service, telephone building, etc.), it may be perceived as less attractive in comparison to other downtown locations.

6. CONCLUSIONS

Given the current inventory of new office buildings approved or under construction in the downtown (Table 3 indicates 166,400 square feet), and the absorption rate currently occurring there, the 97,000-square-foot Courtney Building could be expected to reach its occupancy target within the next 3-year period. On the other hand, future approvals of a number of additional office building projects of similar scale, or a sudden downturn in regional business growth, could prolong the absorption rate, and ultimately cause a leveling off of rental rates and/or the need for special owner concessions to attract tenants.

7. OTHER DOWNTOWN MARKET EFFECTS

The new 97,000-square-foot Courtney Building would tend to dilute the current market for downtown office space by increasing the available inventory by approximately 46 percent (44,000 square feet are now available, and another 166,400 are expected to be completed in the near future). As a result, the overall absorption rate may slow and rental rates may level off. On the positive side, local increases in the worker population due to the project and other office developments would tend to significantly strengthen the downtown retail and commercial service sector.

C. EMPLOYMENT, HOUSING, AND ECONOMIC FACTORS

1. EMPLOYMENT

The proposed office-commercial project could affect city employment in two ways: (1) it could affect resident labor force conditions (workers residing in Berkeley) and (2) it could affect local jobs and jobholder characteristics. Project impacts on both of these local employment factors are described in this section.

a. Setting

(1) Resident Labor Force--Employment and Unemployment Totals. Recent data on Berkeley resident labor force characteristics are summarized in Table 5. In July of 1985, the city's civilian labor force totalled approximately 59,200 people. Of the total, approximately 54,900 were employed and 4,300 were not, for an unemployment rate of **7.3 percent.** In 1980, the civilian labor force was approximately 54,900 and the unemployment rate 6.7 percent. So between 1980 and 1984, the labor force increased by around 4,300 (8 percent) and the unemployment rate increased by 9 percent. The State Employment Development Department reports that the city has a relatively high number of "discouraged workers" among its unemployed total, i.e., people who have stopped looking for work. The City of Berkeley Economic Development Plan (1980) stated that "Berkeley's unemployment rate has been higher than any other city in the Bay Area--and is one of the highest in California."

(2) Resident Labor Force--Places of Employment. Table 6 indicates the place of work for the Berkeley civilian labor force, based on the 1980 U.S. Census. The figures indicate that nearly half of the resident labor force (49 percent) held local jobs in the Berkeley area, and over half (51 percent) were commuting to jobs outside Berkeley, including over 20 percent to the Oakland area and nearly 17 percent to San Francisco.

(3) Local Job Characteristics and Trends. Table 7 lists ABAG estimates of current and projected job totals in Berkeley in comparison with Alameda County as a whole. The Berkeley totals are dominated by the services sector (professional services, business services, personal services, entertainment services, etc.). Since 1970, the city's manufacturing job base has been declining in proportion to total jobs.

ABAG projections for the next 5 years indicate that the city job total is expected to increase by 2.3 percent between 1985 and 1990, versus 8.4 percent for Alameda County as a whole.

(4) Local Job-Holder Places of Residence. Table 8 indicates the place of residence of people holding jobs in Berkeley in 1980, according to U.S. Census and city busi-

Table 5
BERKELEY LABOR FORCE CHARACTERISTICS--1980 and 1985

	1980[a]	1985[b]
Civilian Labor Force (employment residents)	**54,897**	**59,182**
Male	28,350	--
Female	25,547	--
Employed	51,165	54,887
Unemployed	3,732	4,295
Percent Unemployed	**6.7**	**7.3**
Number Working in Berkeley	22,192	--
Percent	48	--
Number Working Outside Berkeley	23,893	--
Percent	52	--

SOURCE:
[a]ABAG, 1980 Census Materials (STF-3A), March 1982.
[b]California Employment Development Department, Report 400R Coastal, Monthly Labor Force Data for Coastal Area, July 1985.

Table 6
PLACE OF WORK--BERKELEY RESIDENT LABOR FORCE
1980 Census

Place of Work	Percentage of Total Resident Labor Force
Berkeley	**48.9**
San Francisco	16.7
San Mateo County	1.0
Santa Clara County	0.9
Livermore/Pleasanton area	0.3
Fremont area	2.8
San Leandro/Hayward area	2.8
Oakland	20.3
Richmond/Pinole	4.4
Central Contra Costa	3.0
Solano County	0.4
Marin County	0.8
	100.0

SOURCE: Metropolitan Transportation Commission, "1980 Census Journey-to-Work, Data Release #2," July 1984.

Table 7
EMPLOYMENT TRENDS--BERKELEY AND ALAMEDA COUNTY

Employment Sector		1980	1985	1990	2000
Agriculture, Mining	Berkeley	250	190	150	110
	County	4,680	3,950	3,070	2,170
Manufacturing and Wholesale Trade	Berkeley	9,790	9,690	9,800	10,650
	County	118,020	122,550	140,410	179,030
Transportation, Communications, and Utilities	Berkeley	2,270	2,550	2,910	3,370
	County	34,690	37,000	41,600	46,500
Retail Trade	Berkeley	9,530	9,730	10,260	10,380
	County	82,530	94,840	109,480	119,680
Finance, Insurance, and Real Estate	Berkeley	2,970	3,010	3,140	3,350
	County	34,240	37,600	45,300	58,000
Services	Berkeley	30,080	30,220	31,490	34,390
	County	151,680	166,050	178,300	213,260
Other	Berkeley	6,920	5,310	5,550	5,250
	County	84,960	87,610	94,340	105,560
TOTALS	Berkeley	59,770	60,700	63,300	67,500
	County	510,790	549,600	612,500	724,200

SOURCE: ABAG, Projections 85; ABAG, 1980 Census Materials, 1980 Census Summary Tape File 3A.

Table 8
PLACE OF RESIDENCE--HOLDERS OF BERKELEY JOBS
1980 U.S. Census

Place of Residence	Percentage of Total Berkeley Area Workers* Public and Private Sectors	Percentage of Total Berkeley Area Workers Private Sector Only**
Berkeley	**39.3**	**26.0**
San Francisco	3.7	
San Mateo County	1.2	
Santa Clara County	0.5	
Livermore/Pleasanton area	1.1	
Fremont area	1.4	
San Leandro/Hayward area	5.3	
Oakland	18.2	
Richmond/Pinole	15.3	
Central Contra Costa	9.1	
Santa Cruz County	1.6	
Napa County	0.3	
Sonoma County	0.4	
Marin County	1.0	
	100.0	

SOURCE: * Metropolitan Transportation Commission, "1980 Census Journey-to-Work, Data Release #2," July 1984.
** Polaris Research and Development, "Integrating Berkeley's Private Sector Workforce: Policy and Program Development Options, Executive Summary," August 1985, p. 13.

ness license data. The figures indicate that nearly 40 percent of Berkeley area jobs in both the public and private sectors were held by Berkeley area residents, 18 percent by Oakland residents, and the remainder by other Bay region residents. More recent figures indicate that approximately **26 percent** of all private sector jobs are held by Berkeley area residents.

(3) City Employment Goals and Policies. In November of 1980, the Berkeley City Council adopted an Economic Development Plan. The plan, prepared by the city's Economic Development Commission, is a policy document designed to guide implementation of an economic development program for the city. Principle aims of the plan which are relevant to the proposed action are to:

- Revitalize the local economy to increase available jobs;
- Promote a strong industrial base as a vital foundation upon which a stable economy can be built; and
- Increase economic equity in land use decisions.

The plan was formulated in response to perceived economic and fiscal erosion in the city and was intended as a path towards reversing downward trends and revitalizing the Berkeley economy. The plan recognized that there were uncertainties in the private sector about the city's economic goals, and that these uncertainties may have been contributing to further deterioration of the city's economic health.

The plan states that "true economic development must be generated through increased private investment activity," that government's primary role should be to "encourage" that activity, and that "the results of this increased activity are more jobs, more tax revenues, and (in many cases) more businesses." The plan's overall objectives which are relevant to the proposed action include:

- Retain existing businesses;
- Improve existing businesses;
- Attract new and viable businesses;
- Build confidence within the business community;
- Fully utilize existing resources and increase their value;
- Increase local employment opportunities; and
- Make special efforts to secure jobs for Berkeley residents.

In response to declines in the number of Berkeley firms engaged in manufacturing, the plan cites two possible reasons: (1) the lack of suitable facilities to accommodate their needs for expansion and modernization; and (2) Berkeley's "negative business climate." With respect to the latter, the plan notes that a city survey of major industrial businesses in Berkeley (1978) indicated that most businesses leaving for this reason felt that a majority of local residents did not really want busi-

nesses in the city--and might impose costs and restrictions arbitrarily that would place Berkeley businesses at a competitive disadvantage. Many of the surveyed businesses also felt that the city's machinery for granting zoning and use permits tends to be vague and uncertain.

b. Project Employment Impacts

(1) Project Primary Employment. Estimated primary (onsite) employment characteristics of the proposed Courtney Building are summarized in Table 9. Employment totals are based on a recent sampling of similar office and retail/commercial space in the Bay Area (employees per square foot) by the State Department of Transportation.* Based on the Caltrans sampling, the project can be expected to accommodate 283 office employees, 27 retail/commercial employees, and 4 garage employees, for a total of **314 workers.** Breakdowns of that total into various employment categories are also listed in Table 9, based upon citywide allocations in 1980. The breakdowns indicate that around half of the project workers would probably be in the professional, technical, managerial, and administrative categories, roughly a third would probably be clerical, and the remaining 17 percent would hold sales, commercial services, and maintenance jobs.

(2) Net New Job Creation. Not all of the employees in the proposed project would constitute new Berkeley jobs. A portion of the new office space would probably be occupied by existing Berkeley employees of businesses currently located elsewhere in the city and seeking expanded or modernized accommodations. A number of the office employees could also be expected to be with existing firms moving to Berkeley from locations outside the city. The remaining portion of office employees would be associated with new businesses. On the other hand, the majority of project retail/commercial employees could be expected to be new Berkeley jobs.

Those existing Berkeley businesses moving to new space in the proposed project would vacate space elsewhere in Berkeley, which in turn would eventually be occupied by other businesses. Eventually, the project-produced net expansion in office and retail/commercial space could be expected to be followed by a corresponding net increase in primary jobs citywide, and the increase could be as high as the project onsite employment figure (314).

(3) Multiplier Effects. In addition to the project's primary employment effects, secondary employment impacts (the "multiplier" effect) would result from two project factors: (a) the added income circulation from direct employment--jobs created as each dollar from the added direct employment wage earners is cycled through the regional economy, and (b) jobs created by growth in secondary business activity in support of the project. In Berkeley, these secondary employment impacts would include added job opportunities in business services (reproduction, travel, banking, etc.), personal services (restaurants, hair cutters, cleaners, etc.), and retailing (business supplies, specialty shops, etc.).

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* Caltrans District 4, 15th Progress Report on Trip Ends Generation Research Counts, December 1983.

Table 9
ESTIMATED PROJECT PRIMARY EMPLOYMENT IMPACTS

	Estimated Project Total-- 1990	Estimated Citywide Total-- 1990[a]	Project % of City Total
Office Space (sq.ft.)	84,950	1,617,200[b]	5.3
Number of Employees	283	5,390[a]	5.3
Professional/Technical	96	--	
Managerial/Admin.	57	--	
Clerical	105	--	
Sales	8	--	
Service	3	--	
Crafts, Inc.	14	--	
Retail/Commercial Space (sq.ft)	12,050	--	--
Number of Employees	27	10,260[c]	0.3
Professional/Managerial	3	--	
Sales	11	--	
Service/Maintenance	13	--	
Parking Garage Space (sq.ft.)	55,750	--	
Number of Employees	4	--	
Summary			
Professional/Managerial/Tech.	156 (50)	31,500	0.5
Clerical	105 (33)	10,900	1.0
Sales	19 (6)	5,100	0.4
Service/Maintenance	34 (11)	7,200	0.5
Other	--	8,600	--
TOTALS	314 (100)	63,300	0.5
Construction Period Jobs			
Construction Cost	$85 million		
Total Jobs[b]	71		

SOURCE: Wagstaff and Brady, September 1985.
[a]Total office square feet divided by 300 gross square feet of office space per employee factor from Caltrans Progress Report #15.
[b]Wagstaff and Brady estimate based upon total in Table 3 increased by 150,000 square feet per year.
[c]From Table 7.
[d]Based on the jobs/construction dollar factor used in the Berkeley Waterfront Plan program (one job for every $240,000 of construction cost).

The ABAG Regional Job Multiplier has been around 2.3 for all nine counties in the Bay Region. Using this figure with adjustments for external effects, **the total employment impact potential of the project would be to eventually generate around 500 to 600 new jobs in Berkeley.***

(4) Origin of New Job Holders. The place of residence of the new project-related Berkeley job holders is difficult to reliably predict. Some of these new job holders would move into the city as new residents. Others would be existing city residents who would switch from jobs elsewhere in the city. In turn, some of these vacated city jobs would be filled by additional persons who move into the city from other areas. Some of the new jobs would be taken by Berkeley persons who were previously unemployed or underemployed, or are entering the work force for the first time. Finally, some of these new jobs would be taken by city residents who shift from jobs outside the city (according to 1980 census data summarized in Table 6, about 49 percent of the workforce living in Berkeley worked outside the city).

(5) Jobs to Berkeley Residents. There is no guarantee regarding what portion of new Berkeley office building jobs would be occupied by city residents unless specific assurances or incentives that provide preferences to Berkeley residents are incorporated into development agreements and CC&Rs for all new office space. In any event, some portion of the net new primary and secondary Berkeley jobs generated by the project would go to Berkeley residents. The July 1984 MTC figures in Table 8 indicate that approximately 40 percent of all Berkeley public and private sector jobs are currently held by Berkeley residents. A more recent source of data on Berkeley employment characteristics, the August 1985 Polaris Report ("Integrating Berkeley's Private Sector Workforce")** indicated that a smaller portion of all Berkeley **private sector jobs, 26 percent**, are currently held by Berkeley residents.

Most project-generated primary and secondary job growth would occur in the private sector, based on the anticipated tenant profile of the Courtney Building and the characteristics of typical secondary job growth. If these primary and secondary job holders follow the current citywide pattern for private sector jobs, then 20 to 30 percent of the project-generated job increase, or **between 100 and 180 of the new jobs, would tend to be held by Berkeley residents.** (See Appendix C for computation.)

New businesses would be an important source of these new jobs for Berkeley residents, especially small independent businesses moving into Berkeley space vacated by firms moving to the Courtney Building, retail-commercial business moving into the project's ground-floor space, and service and retail businesses made possible by the project's multiplier effects. New entry level and commercial service jobs

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* The local multiplier would be slightly higher than the Bay Region figure, i.e., around 2.5, to compensate for "leakage" in the less urban counties. Some of the multiplier effect would apply to the place of residence of the new employees, and the remainder would apply locally. Assuming that 2/3 of the effect would occur locally and 1/3 would be external, the total effect on Berkeley would equal 314 x 2.5 x .66 = 518.

** Polaris Research and Development, Integrating Berkeley's Private Sector Workforce: Policy and Program Development Options, Executive Summary, August 1985; p. 13.

would be more likely to be taken by persons already living in the Berkeley area than by long-distance commuters.

(6) Impacts on the Underemployed and Unemployed. As explained in the "Evaluation of Alternatives" for the Berkeley Waterfront Plan program,* meeting the needs of Berkeley's underemployed and unemployed requires both an increase in the total number of job opportunities and a process to target a portion of the new job opportunities to potential workers. As estimated above, the proposed project would serve to increase Berkeley labor-force-working-locally totals by 100 to 180 jobs. Of the total primary jobs listed in Table 9, the clerical, sales, service, and maintenance categories (50 percent of the total) would offer the most promise of providing jobs for the city's underemployed and unemployed.

In order to assure that some of these jobs were made available to potential Berkeley employees in need, a **targeted jobs program** would be needed that would work with new businesses and potential employees (see Mitigation Measure #1 below).

(7) Construction Period Jobs. The project construction period is expected to last approximately one year, and would provide additional construction jobs during that period. The number of construction jobs is estimated in Table 9 at roughly 70, based upon the dollar value of the proposed project improvements.

"Targeting" a portion of such construction jobs to Berkeley residents would require the joint cooperation of building trades unions and developers. To be effective, such locally targeted construction jobs programs must also include apprenticeship components for hiring and training local residents, and must be broad enough in number of construction dollars and jobs involved to overcome labor union resistance (see Mitigation Measure #2 below).

(8) Relationship of Project Impacts to City Economic Goals and Policies. Based on the above findings, approval of the proposed action would be generally consistent with city Economic Development Plan goals to revitalize the local economy, promote a strong industrial base, increase private investment activity, retain existing businesses, attract new and viable businesses, build confidence within the business community, and thereby increase local employment opportunities and fiscal health. There are no assurances yet, however, that the proposed action would include participation in any citywide efforts to secure jobs specifically for Berkeley residents.

c. Mitigation Measures

(1) Targeting Project-Related Jobs to Berkeley Residents. Assurances that a given portion of project permanent jobs would be directed to workers residing in Berkeley might be achieved through establishment of a "targeted jobs program," as suggested in the Berkeley Waterfront Plan Evaluation of Alternatives and in the Polaris report. Although some jobs created directly and indirectly by the project would go to Berkeley residents because of proximity (20 to 30 percent according to

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* McGuire and Company, "Economic Development, Berkeley Waterfront Plan Evaluation of Alternatives," May 1985; p. V.F.5.

the EIR estimate), a **targeted program** would be necessary to assure these results or to increase the allocation.

The Berkeley Waterfront Study investigation of this approach concluded that, at a minimum, "a targeted jobs program would require city staffing for outreach to building owners and new businesses, public relations to attract participating businesses, job counselling, and recruitment."*

The Polaris report recommends a number of specific measures for application to private development projects in order to increase participation in the private-sector workforce by targeted groups, including Berkeley residents. Suggested measures which may be applicable to the proposed Courtney Building include the following:

(a) Statement of Affirmative Action. Include a statement of affirmative action as a provision in a development agreement between the applicant and the city and/or as part of the individual business license application process for each Courtney Building tenant, affirming the commitment of the building ownership and its tenant businesses to be guided in the recruiting and hiring practices by certain affirmative action principles suggested by the city. The affirmative action principles could include job recruitment and hiring preferences to Berkeley residents. As the Polaris report explains, while such a program would have little, if any, potential for legal enforcement, it may have beneficial persuasive effects. (Polaris report, Executive Summary, p. 5.)

(b) First Source Agreement. Negotiate a contract between developer (and/or tenant employers) and city to train and hire local residents. The Polaris report explains that the primary use of such agreements has been with entry level jobs, but they can also be used to encourage the hiring of people for semi-skilled and skilled jobs. The contract would require that project tenant employers agree to use local training and recruitment programs as the "first source" to fill new job openings, if the city, through its programs, can provide job-ready candidates who meet employer-specified qualifications. (Polaris Final Report, p. 60.)

(c) Development Agreements. Establish a voluntary agreement between developer (and/or tenant employers) and city, negotiated in the absence of a clear legal mandate, that states affirmative action measures to be taken by the developer (and/or tenant employers) as a condition of city support for the project. (Polaris Final Report, p. 62.)

(Similar to the Polaris report, the Berkeley Waterfront Study "Evaluation of Alternatives" report also suggests that "some kind of assurances or incentives could be written into a development agreement or leases which would provide preferences to Berkeley residents."**)

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* McGuire & Company, Economic Development, Berkeley Waterfront Plan Evaluation of Alternatives, p. V.F.5.
** McGuire & Company, p. V.F.6.

Such an agreement could be negotiated to set employment goals for the permanent and the construction work force, modelled perhaps after a similar Memorandum of Understanding between the city and the developers of the City Center Ltd.

In lieu of, or in combination with, meeting certain employment targets, the agreement could establish other developer concessions, perhaps modelled after the recent Golden Bear project development agreement which includes provision of a developer commitment to provide a certain amount of project floor space for use by the city for its job training and recruitment program. Such an agreement could also stipulate a specific in-lieu dollar contribution towards implementing the city's job training and recruitment program. (A development agreement between the city and the developers of the proposed 176,300-square-foot Berkeley City Center Ltd. hotel project stipulates that the developer will contribute $20,000 towards the city's targeted employment program, although as of this writing construction of the project had not begun.)

Several other approaches were also suggested in the Polaris report, including the possibility of an **impact mitigation fee** in lieu of performance in meeting the city's jobs targeting goals (Polaris Final Report, p. 72). Such a fee could be charged at some rate per square foot of project floor space. In order to make such an impact fee mandatory, it would probably have to be enacted by ordinance for imposition on all development projects that would have a negative environmental impact; i.e., would not meet the city's jobs-to-Berkeley-residents or other employment goals. Also, to establish that such a charge is indeed an impact fee (and not a tax), the city would need to adequately document the relationship between the fee amount ($) and the actual cost to mitigate the adverse employment impact.

(2) Construction Period Jobs to Berkeley Residents. Similar to project-generated permanent jobs, some portion of the construction period jobs created by the project would go to Berkeley residents. Assuring that a specific portion would go to Berkeley residents, however, would require a similar "targeted" construction jobs program.

An agreement could be negotiated between the city and the developer to set targeted employment goals for the construction work force, modelled perhaps after a similar Memorandum of Understanding established between the city and the developers of the Berkeley City Center Ltd. project. Although construction of the City Center Hotel project has not yet occurred, the agreement is considered by the Polaris report authors to be a good model for future projects.

(3) Jobs to Berkeley Disadvantaged, Underemployed, and Unemployed Persons. Again, targeting jobs to specific groups requires city and large-scale private sector cooperation in establishing a city-managed jobs training and recruitment program. The choice of measures listed under (1) above for targeting project jobs to Berkeley residents also applies to implementing city goals regarding preferences to underemployed and unemployed residents, as well as to females, minorities, and disabled persons.

2. POPULATION AND HOUSING

Project effects on Berkeley population and housing conditions are of particular concern in light of (1) high demands in the city for housing in general, and (2) the city's severe shortage of rental housing.

a. Setting

(1) Population and Household Totals. ABAG-projected population and housing trends for Berkeley are summarized and compared with countywide trends in Table 10. ABAG estimates that the city of Berkeley has a 1985 population of approximately 106,600 residing in 45,240 households. Like other "core" cities in the Bay Area, Berkeley's population has been declining. Between 1970 and 1980, the total declined by approximately 13,400 people (12 percent). Table 10 indicates that ABAG projects a more erratic trend for the 1980 to year 2000 period. The table shows a slight population increase (3 percent) in the 5 years since 1980 (1980–85), followed by another, more gradual, decline between 1985 and the year 2000. The city's household size is also expected to show a slight overall decline between 1980 and 1990.

(2) Household Income Trends. Table 10 also includes ABAG median household income projections for Berkeley. The figures indicate that the city's average household income is expected to increase by less than one percent per year between 1985 and the year 2000, a rate slightly less than the projected county rate. The large number of university students accounts in part for the relatively low household income figures.

Table 10
BERKELEY POPULATION AND HOUSEHOLD TRENDS, 1980–2000

	1980	1985	1990	2000
Population	103,300	106,600	105,400	103,300
Households	44,704	45,240	45,670	46,500
Employed Residents	51,250	53,800	57,500	60,000
Mean Household Income	21,392	22,100	22,800	24,000
(County)	(24,563)	(25,600)	(26,700)	(28,700)
Persons per household	2.31	2.36	2.31	2.22

SOURCE: ABAG, Projections 85, May 1985.

(3) Housing Vacancy Rate. The housing vacancy rate in Berkeley has fallen in recent years to levels which are considered critical. The 1980 census indicated a 3.5 percent overall residential vacancy rate in Berkeley. The Berkeley Housing Element suggests that the 1980 rate was closer to 2.4 percent, and that the rate for rental housing may now be near one percent. The Housing Element emphasizes that the university student population (31,000 enrollment), with its ongoing and growing demands for affordable housing, is a major contributor to the city's vacancy problem. About two-thirds of the university's enrollment resides in Berkeley. The university provides around 9,000 student dwelling units. The remainder of the demand must be met by the Berkeley private market.

Other factors identified in the Housing Element as contributors to the city's vacancy problem include cumulative regional growth, the scarcity of undeveloped land, and diminishing federal and state support for housing programs. The city's rent stabilization program, which went into effect in 1981, may also be discouraging construction of new rental housing.

In addition to these factors, regional and local employment growth will also continue to contribute to demands for affordable housing in the city and associated vacancy problems. ABAG projections for the next 5 years (1985–1990) indicate that while city job growth will take place at a rate substantially lower than for Alameda County as a whole, the city job growth rate will nevertheless significantly exceed the anticipated growth rate for housing. The city job total is expected to increase by 2.3 percent between 1985 and 1990 (vs. 8.4 percent for Alameda County as a whole), while the city household total is expected to increase by less than one percent (0.4 percent vs. 5.5 percent for the county as a whole). The city's adopted Housing Element emphasizes that "Berkeley needs to expand its housing stock for two reasons, to raise its low vacancy rate and to accommodate its share of regional growth."*

(4) Housing Tenure. 1980 Census figures indicated the following breakdown in Berkeley housing tenure:

Renter-occupied	62 percent
Owner-occupied	38 percent

Demographic data from the 1980 Census and the city's Housing Element indicate that while the overall number of Berkeley housing units declined between 1970 and 1980, the number of owner-occupied units actually increased, while the renter-occupied total declined substantially. The number of owner-occupied units increased by roughly 1,365 units in this period, while the rental stock declined by around 1,165 units. The figures indicate that a portion of the city's rental housing stock was converted to owner occupancy over the last decade, exacerbating the rental shortage crisis.

(5) Housing Costs and Affordability. The mean value of all owner-occupied units in Berkeley was estimated to be $110,750 by the 1980 U.S. Census--17 percent

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* The Berkeley Master Plan Housing Element, 1985, adopted February 26, 1985; pp. iii–iv.

higher than the mean for Alameda County ($94,210). On the other hand, 1980 housing rental price figures for Berkeley were low ($226 per month) in comparison to Alameda County as a whole ($249 per month). According to the analysis of census data in the city's Housing Element, about one-third of the city's 45,000 households were spending more than one-third of their income on housing by 1980. Last year, the average selling price of Berkeley homes had reached $160,000, as compared to $135,000 for the Bay Area as a whole.

(6) City Housing Goals. The Berkeley Master Plan Housing Element as most recently revised and adopted (February 1985) addresses the shortage of suitable and affordable rental and owner housing in Berkeley. In response to the high demand for housing, the revised Element places emphasis on the need to expand the city's housing stock to increase the vacancy rate and accommodate regional growth. The Element also addresses special needs, including those of low and moderate income Black families, the elderly, the disabled, single-parent households, and university students. Berkeley's greatest need, according to the Element, is for affordable housing. The Housing Element includes the following principal goals (paraphrased):

- Berkeley residents should have access to decent housing in pleasant neighborhoods at a range of prices they can afford.
- New housing should be developed, in accordance with density and environmental standards, to expand housing opportunities.
- Stimulate developments which combine residential with commercial uses in appropriate commercial locations serviced by adequate public transportation.
- Berkeley should have an adequate supply of housing for persons with special needs.

b. Project Population and Housing Impacts

(1) Project-Related Increases in Local Housing Demands. The impact of project-related primary and secondary job growth on Berkeley housing conditions would be a function of a number of factors, including proximity to work place, local housing availability and affordability, housing type and size preferences, neighborhood preferences, and so on. If the new primary and secondary jobs generated by the Courtney Building project generally followed place-of-residence patterns identified in the recent "Polaris report," between 20 and 30 percent of these new job holders, or 100 to 180 of the new employees, would tend to live in Berkeley. (See Appendix C.)

It is difficult to translate this total for new project-generated jobs held by Berkeley residents into a precise additional Berkeley housing demand figure. The lower end of the range would tend to apply if current Berkeley housing supply constraints persisted over the next 3 to 5 years. The higher end of the range would tend to apply if Berkeley housing conditions improved over this period. A portion of the 100-to-180 new employees total would be comprised of people who move into the city as new residents. A portion would be existing city residents who are currently underemployed, unemployed, or entering the workforce for the first time. A portion would be existing city residents who shift from jobs elsewhere in the city. In

turn, some of these vacated city jobs would be taken by additional persons who would move into the city from other areas. Considering all of these factors, **it is estimated that of the 100 to 180 holders of new project-generated jobs who can be expected to reside in Berkeley, between 60 and 115, under normal circumstances, could be expected to be new Berkeley residents** (see Appendix C for computation). It is estimated that these 60 to 115 new Berkeley residents would in turn translate into a demand for 50 to 95 additional Berkeley homes, based on ABAG figures for the number of employees per average Berkeley household (again, see Appendix C). This added demand, in combination with similar housing demand increases associated with other cumulative employment growth in the city, could be expected to exacerbate current housing availability and affordability problems in Berkeley.

(2) Impacts on City Housing Costs and Affordability. In general, the effect of the project would be to add to demands for local housing and thus increase housing prices, unless the housing supply also increases. In light of the relatively high selling prices for Berkeley owner-occupied homes, additional employees in the higher salaried job categories, including professional, technical, managerial, and administrative employees, would be more likely to find affordable housing for purchase in Berkeley (particularly those who belonged in dual-income households). Relatively few of the lower salaried sales, service, and clerical workers would be able to afford to buy a local home unless they were members of dual-income households. Thus, the project would add to existing local housing affordability problems.

Those project-related new employees who wish to live in Berkeley and who already have substantial equity in a home elsewhere, or who are contributing to household incomes of $35,000 or more, could probably purchase housing in the Berkeley marketplace. This added market demand in turn would contribute to upward pressures on Berkeley housing prices. Some of these workers would seek homes in the more affordable parts of the city, and thus would contribute to cumulative increases in the competition for Berkeley's lower priced housing, raising the minimum level of income needed to become a Berkeley resident. Some of those project-related employees who could not afford housing for purchase anywhere in the city may compete instead for scarce rent-controlled units. In a broader sense, those new project-related employees who would want to move to the city (again, estimated at roughly 60 to 115 people) and found that they could not afford Berkeley housing-for-purchase and could not locate an appropriate rental, would experience and add to Berkeley's unmet housing needs.

(3) Loss of a Potential Housing Opportunity. The C-2 (Downtown Commercial) Zone is intended to provide for a wide variety of central area land uses including general commercial uses such as the proposed project, as well as residential uses meeting the requirements of the city's R-5 zoning district. Construction of the proposed office-commercial project would preclude the use of the site for housing. The evaluation of alternatives to the proposed action in Section V of this EIR describes the comparative implications of a residential use on this site. The comparison indicates that construction of an R-5 residential project on the Courtney site could yield as many as 56 one- and two-bedroom residential units for upper income buyers. Because the property was recently purchased as a C-2 site (i.e., at approximately $58 per square foot, a price typical for current C-2 land in Berke-

ley[a]), the required average selling price for these units under normal market conditions would be between $167,000 and $180,000.[b] A similar 6-story residential project proposed for an R-4[c] site at Oxford and Hearst (Oxford House) anticipates an average selling price of between $161,000 and $175,000 per unit. The difference in anticipated selling prices between the two similar projects is due to the difference in the purchase price of the land, which in turn is determined by the allowable development capacity.

An alternative development approach combining residential with commercial would reduce the average required asking price for the residential units only slightly to between $165,000 and $179,000 (see Table 35). Thus, the market feasibility of such a residential-commercial project at this location is highly uncertain since: (a) the required selling price for the units would be comparatively high relative to Oxford House and other housing for purchase in Berkeley (the average 1984 price in Berkeley for a single-family detached home was $160,000), (b) residential units are, in general, more difficult than office space to market,[d] and (c) no comparable housing of this type (midrise residential) has yet been successfully marketed in Berkeley.

In conclusion, the mixed residential-commercial approach would be consistent with adopted Housing Element goals and preliminary Downtown Plan goals with respect to expanding the city's housing stock, encouraging mixed use, and providing high-density residential development in the downtown, but would not serve goals to develop low and moderate income housing in the downtown, or affordable housing citywide. Instead, such a project, if marketable, would provide housing for upper income buyers, and would have no direct impact on the availability of affordable rentals.

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[a]Land prices in the central area are usually determined by the allowable development intensity (F.A.R.) and potential return on investment.

[b]See Table 35 in this report for the computation of this price range. This average selling price per unit figures are "required" in order to attract the necessary project financing. Real estate projects are financed through mechanisms such as bank financing (debt), limited partnerships (syndication), real estate investment trusts (REITs), and so on. Eligibility for such financing requires that the development program must show a certain minimum "internal rate of return," or the sources of financing (bank lending capacities, private investment capacities) will be directed to other investment opportunities which meet the rate-of-return criteria. The required rate of return on investment is determined primarily by the degree of "risk." The required rate of return for a typical real estate project in order to attract investors is conservatively assumed in this report to be between 20 and 30 percent.

[c]R-4 and R-5 zoning provisions differ primarily with respect to parking requirements.

[d]Sally Woodbridge, "Perspectives--Mixed-Use Formula in San Francisco," Progressive Architecture, April 1985.

c. Mitigation Measures

Local employment growth is one of numerous cumulative factors which contribute to the shortage of suitable and affordable housing in Berkeley. The project-related local housing demand increase estimated in this report could be expected to contribute to these cumulative housing impacts. The city's Housing Element addresses the shortage of suitable and affordable housing in Berkeley, and emphasizes the need to expand the city's housing stock and to meet the city's special housing needs. The Housing Element outlines a comprehensive implementation program to pursue these needs.

To mitigate the project-related adverse housing impact potentials identified in this EIR, a voluntary **development agreement** could be negotiated between the developer and the city that states the housing impact mitigation measures to be taken by the developer as a condition of city support for the project. Measures to be taken by the developer could take the form of certain specific actions, or the contribution of certain specific resources towards implementing the housing improvement program set forth in the Housing Element.

In lieu of the performance of these specific actions or the commitment of specific resources, the agreement could stipulate that a specific dollar contribution would be made by the applicant towards implementation of the housing improvement program described in the Housing Element. The contribution could be directed towards such citywide housing assistance programs as mortgage assistance, rehabilitation loans, land procurement, or actual housing construction.

Note: Another possibility which has been discussed for mitigating the housing impacts of office development is the establishment of a housing impact mitigation fee, based upon a set rate per square foot of office floor space. To make such a fee mandatory, it would probably have to be enacted by ordinance for imposition on all development projections that can be shown to have an adverse impact on local housing conditions. To establish that the charge is indeed an impact fee (and not a tax), the city would have to adequately document the relationship between the dollar fee charged and the cost to mitigate the office-related housing impact. In the case of the proposed Courtney Building, a voluntary contribution (development agreement) may be preferable, in light of the project construction and occupancy schedule.

If business and related employment opportunities are to be attracted to Berkeley, the city should also keep in mind that the total mitigation burden placed on new office development should not be substantially higher than alternative nearby office development locations (a point made by the city's Economic Development Plan).

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D. CIRCULATION AND PARKING

I. EXISTING SETTING

a. Street System

(1) Freeways. Downtown Berkeley and the proposed Courtney Building site are served by a major interregional freeway system including Interstate 80, State Route 24, and Interstate 580. Interstate 80 (the **Eastshore Freeway**) is the major north-south route from Berkeley south to San Jose and north to Richmond. Peak-hour traffic is carried via eight lanes (four in each direction) and averages 17,465[1] vehicles per hour (vph). Eastshore Freeway traffic typically flows well through Berkeley; however, during the peak periods, congestion occurs north of the Bay Bridge interchange.

The following two Eastshore Freeway interchanges would serve the Courtney Office Building:

- Ashby Avenue -- Northbound offramp
  -- Southbound onramp
- University Avenue -- Northbound onramp
  -- Southbound offramp

The **I-80/180 Operational Improvements Program**, a California Department of Transportation (Caltrans) plan for modifying and reconstructing segments of the I-80 freeway between the Bay Bridge Toll Plaza and the Carquinez Bridge, includes a proposed widening of I-80 in both the northbound and southbound directions through Berkeley. Between Powell Street and Ashby Avenue, the existing five northbound lanes would be retained and the southbound roadway widened from four lanes to six by the addition of one freeway lane plus one auxiliary lane (a frontage route from the Powell Street northbound onramp to the Ashby Avenue northbound offramp). Between Ashby and University Avenues, the freeway would be widened from four lanes to five in each direction to provide a 25 percent increase over existing capacity. Between University Avenue and Gilman Street, the northbound roadway would be widened from four lanes to five, and the southbound roadway would be widened from four lanes to six with the addition of one freeway lane and one auxiliary lane. Between Gilman Street and Buchanan Street (the Albany exit), the freeway would be widened from three lanes in each direction to four northbound lanes and six southbound lanes (which would merge to five lanes by the time they reached Gilman), plus a southbound auxiliary lane.

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[1] All freeway traffic data obtained from: "1983 Traffic Volumes on the California State Highway System," California Department of Transportation.

State Route 24 provides an interregional east-west connection between Berkeley and eastern Contra Costa County (Orinda, Lafayette, Walnut Creek, Concord, etc.). **Interstate 580** and **State Route 13** provide a southeast and east connection between Berkeley and southern and eastern Alameda County (east Oakland, San Leandro, Castro Valley, Hayward, etc.). The Courtney Building site is linked with these two freeways by Shattuck Avenue/Adeline Street, Martin Luther King Way, and Tunnel Road.

(2) Local Streets. Figure 35 shows the general street network in downtown Berkeley. A one-way street system is in operation in the area of the project site. One-way streets generally have a higher capacity than streets operating with two-way traffic flows. Vehicles approach the site from the east via Bancroft Way and Haste Street. Leaving the site, westbound vehicles would use Durant Avenue, Fulton Street, and Dwight Way.

The City of Berkeley Master Plan[1] designates Fulton Street/Oxford Street, Shattuck Avenue, Martin Luther King Way, University Avenue, Haste Street, and Dwight Way as **Major Streets** in the vicinity of the site. Major Streets are intended to be high-volume routes linking districts within the city and surrounding communities, and distributing traffic to and from the freeway. University Avenue provides the closest direct access to the Eastshore Freeway.

The following streets are designated as **Collector Streets** in downtown Berkeley: Bancroft Avenue, Durant Avenue, and Milvia Street. Collector Streets are defined in the Berkeley Master Plan as routes intended for carrying varying traffic volumes and providing access to local streets, major streets, and activity centers.

(3) Local Intersections. Peak-hour intersection capacity conditions were calculated at nine key intersections serving the project vicinity, utilizing the TRACS computer model[2] (Figure 38). Critical movement analysis[3] was utilized to develop "level of service" ratings for each intersection (see Table 17 and Appendix B for "level of service" definitions). In general, all nine major intersections in the area operate at acceptable levels of service during the evening peak hour, i.e., level of service "D" or better. The most significant congestion occurs on the heavily travelled University Avenue, Shattuck Avenue, Oxford Street, and Durant Avenue corridors. The most congested intersection is University Avenue/Shattuck Avenue. The capacity of this intersection is reduced by the need to accommodate traffic in three movements or phases. In addition, northbound buses on Shattuck Avenue hinder auto traffic as they negotiate the awkward left and right turns required for through movement.

Heavy pedestrian volumes throughout downtown Berkeley also reduce the vehicular capacity of intersections in the downtown area, especially along Shattuck Avenue and Bancroft Way.

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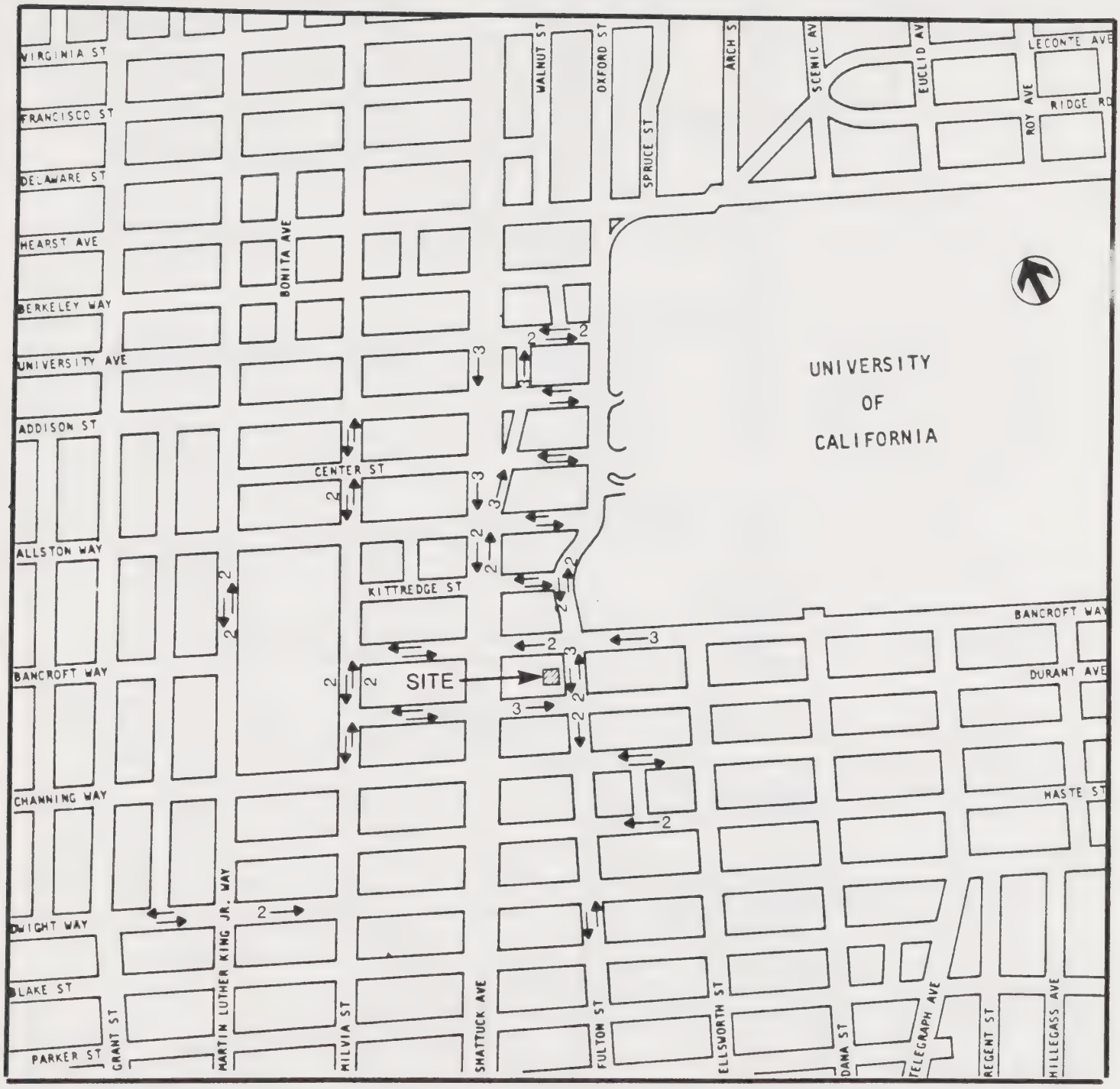
[1] Berkeley Master Plan, City of Berkeley, June 1977.

[2] Developed by DKS Associates.

[3] "Interim Materials on Highway Capacity," Transportation Research Board, Circular No. 212, Washington, D.C., January 1980.



← 2 INDICATES NUMBER OF LANES AND DIRECTION OF TRAVEL (SINGLE LANES ARE UNNUMBERED)

FIGURE 35
LOCAL STREET NETWORK

b. Transit

The project site is served by two public transit systems: the Alameda Contra Costa Transit District (AC Transit) and Bay Area Rapid Transit District (BART) (see Figure 36).

(1) AC Transit. The project site is well served by existing public transit lines, as diagrammed on Figure 36. There are twelve AC Transit lines within a five-block radius of the site. Headways vary from 4 to 60 minutes during the morning and evening peak periods. Midday service frequencies range from 7 to 60 minutes. The lines which provide the most convenient access to the site are Routes 37U, 40, and 51 on Durant Avenue and Routes 33, 37, 43, 65, and F on Shattuck Avenue. The F line provides transbay service to San Francisco.

The AM peak-hour load factor[1] on AC Transit routes serving the Courtney Building range from 19 percent to 81 percent of seated capacity (see Table 11). AC Transit has a service objective of keeping peak-period load factors under 125 percent during the peak half-hour period.[2] The figures in Table 11 indicate that this criterion is met by all lines in the vicinity of the proposed project. The average peak-hour load factor for all routes leaving the CBD is 46 percent of seated capacity.

(2) BART. The closest project access point to the BART system is provided at the Berkeley Station, three blocks from the proposed site, as diagrammed on Figure 36. Station entrances are located at the Addison/Shattuck intersection (on the southeast and southwest corners), at the Center/Shattuck intersection (on the southwest corner), and at the Allston/Shattuck intersection (northeast and northwest corners).

BART currently runs two lines through its Berkeley Station: the Richmond–Daly City line, and the Richmond–Fremont line. A transfer is required at the MacArthur Station in Oakland to use BART's third line between Concord and Daly City. PM peak-hour load factors on these routes range from 0.58 to 1.48 (see Table 12). For planning purposes, BART assumes that a 1.5 load factor is the average peak-hour use level that will be tolerated by passengers,[3] and that passengers will balance their ridership among the available lines serving their destination.

c. Parking

(1) Offstreet Parking Spaces Offsite. There are a total of about 1,175 public offstreet parking spaces within four blocks (roughly 1,500 feet) of the Courtney Building site (see Figure 37). During the peak mid-morning and mid-afternoon

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[1]Load factor is the ratio of passengers to available seats. The load factor is based on a 1984 cordon count of all central district outbound buses supplemented by a recent cordon count of three lines serving the south campus area, and represents the most comprehensive data available.

[2]AC Transit Five Year Plan FY 1985–1989, 1984.

[3]BART 1984 Short Range Transit Plan, June 21, 1984.

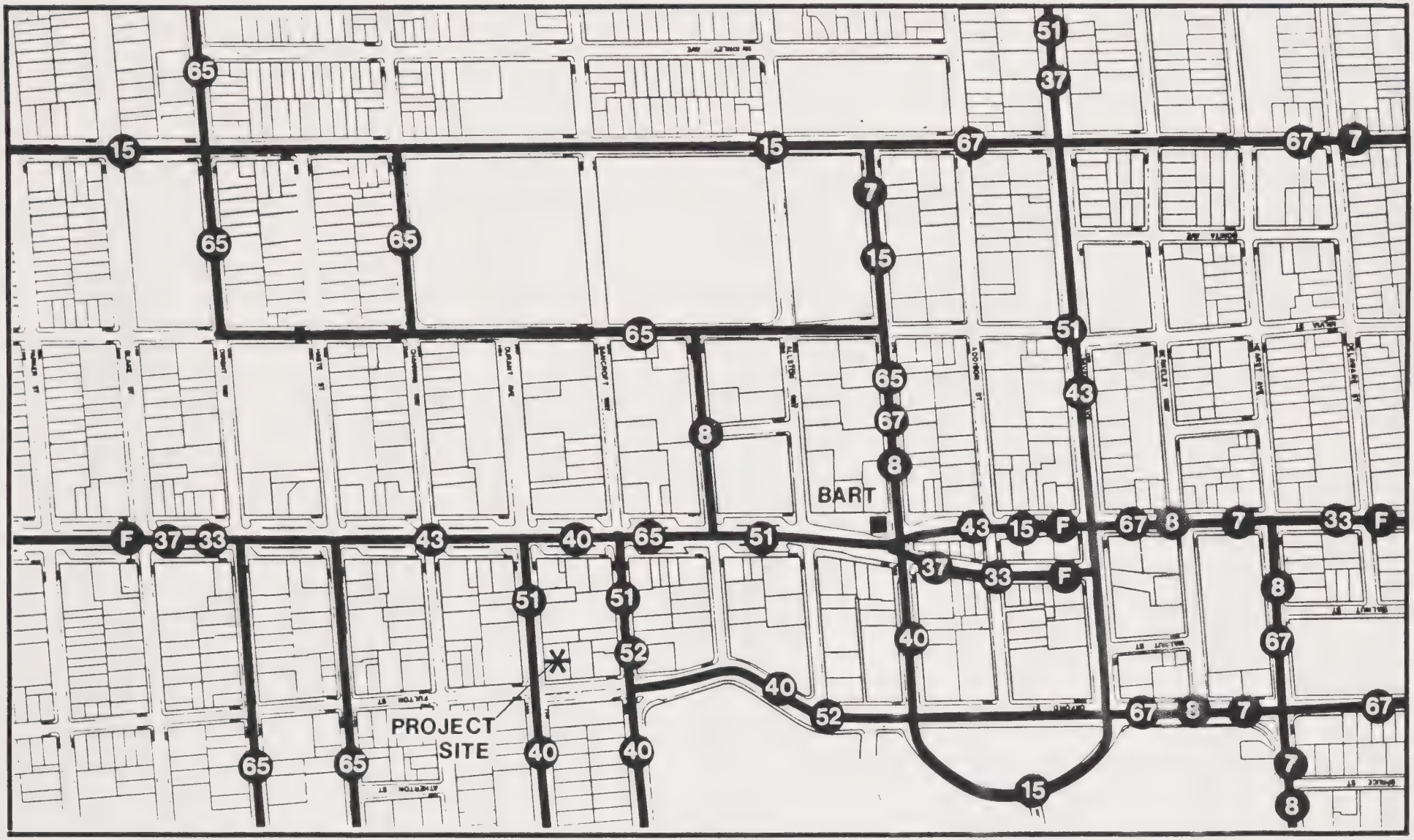


FIGURE 36
EXISTING TRANSIT ROUTES

Table 11
AC TRANSIT PATRONAGE (1984)
Outbound Direction from Berkeley CBD, 4:00–6:00 PM

Cordon Station	Route	Passengers[a]	Seated Capacity[a]	Load Factor[b]
1. Shattuck/Dwight	33, 37, 43, F	460	1,320	0.35
2. Warring/Parker	37U, 65	65	336	0.19
3. College/Parker	51	470	576	0.81
4. Telegraph/Derby	40	240	528	0.45
5. MLK[c] and University	37, 43, 51	920	1,200	0.77
6. Shattuck/Hearst	33, F	430	1,104	0.39
7. MLK and Hearst	7, 67	230	840	0.27
8. MLK and Dwight	15	150	480	0.31
TOTALS		2,965	6,384	0.46

SOURCES: AC Transit Schedule Department (December 1984); DKS Associates Field Survey, July 17, 1985.

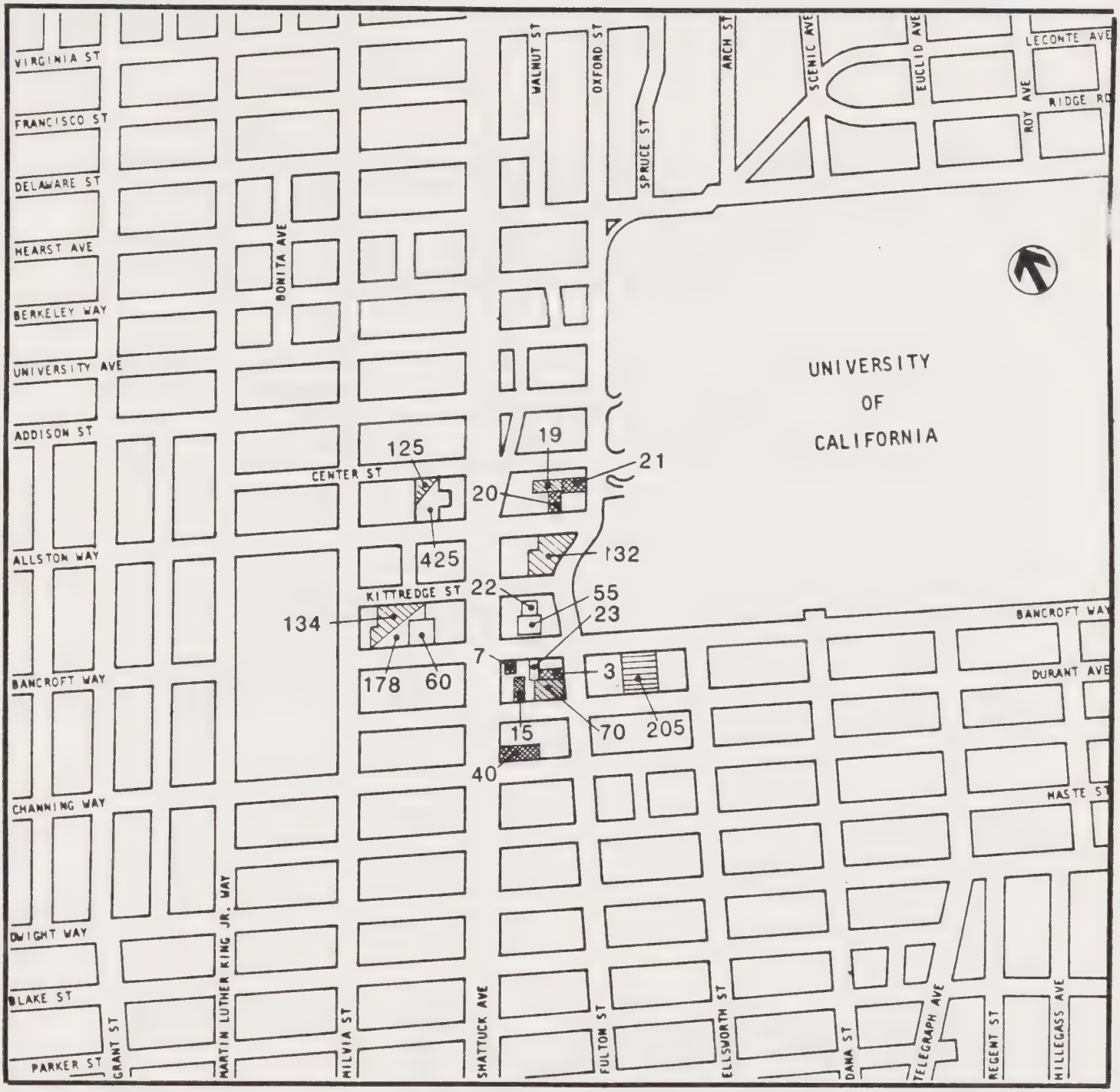
[a]Passengers and capacity are for full two-hour period 4:00 to 6:00 PM.
[b]Load factor equals passengers divided by seated capacity.
[c]Abbreviation for Martin Luther King Jr. Way.

Table 12
BART PATRONAGE
1985 PM Two-Hour Peak Period/Peak Direction[a]

Location	Route/Direction	Seats	Passengers	Load Factor
East of MacArthur Station	Daly City to Concord	7,269	10,278	1.41
North of Berkeley Station	Daly City to Richmond	3,229	3,175	.98
	Fremont to Richmond	1,869	1,087	.58
South of Lake Merritt Station	Daly City to Fremont	4,806	7,149	1.48
	Richmond to Fremont	2,139	2,545	1.19
West of San Francisco Civic Center Station	All routes to Daly City	11,307	10,315	.91

SOURCE: "Representative PM Peak Weekday Load Factors for January-March 1985," BART Planning and Analysis.

[a]PM Peak two-hour period data extrapolated from BART PM Peak Hour train cycle ridership information.



SITE

PUBLIC PARKING

CUSTOMER PARKING

MONTHLY PARKING

PRIVATE PARKING

FIGURE 37

OFF-STREET PARKING

parking periods, occupancy in the two parking structures nearest the site (accounting for 75 percent of adjacent parking) ranges between 65 percent and 82 percent.[1]

(2) Offstreet Parking Spaces Onsite. An additional 70 spaces are currently provided offstreet on the project site itself. Typically, this lot is 80 to 100 percent full during weekday hours, although demand may drop to 60 percent of capacity during the summer months when university enrollment is reduced.

(3) Onstreet Parking Spaces. The availability of onstreet, convenient parking is important to retail uses which require adequate space for customer parking. There are a total of about 1,200 onstreet parking spaces within downtown Berkeley.[2] These spaces are approximately 75 to 85 percent occupied during the midday. Onstreet parking is considered to be at practical capacity at these occupancy rates.

d. Pedestrian/Bikeway Circulation

The site is currently served by 13-to-15-foot sidewalks on each side of its contiguous approach routes--Durant Avenue and Fulton Street. Near the project site, the greatest pedestrian activity occurs at the intersection of Bancroft Way and Fulton Street. Table 13 presents current pedestrian volumes in crosswalks adjacent to the site. Overall, these current flows indicate that very light and "free pedestrian flow" conditions exist at all nearby intersections during peak period conditions.

Table 13
PEDESTRIAN CROSSWALK VOLUMES
Peak 15-Minute Period

Location	Midday Peak 15 Minutes
Fulton & Durant	
Crossing Fulton--North Crosswalk	25
Crossing Durant--West Crosswalk	33
On Fulton Northwest Sidewalk	30
On Durant--Northwest Sidewalk	25

SOURCE: DKS Associates Field Survey, July 17, 1985 (11:30-1:30 PM).

In addition to conventional sidewalks, a system of downtown pedestrian pathways and bikeways has been designated in the Berkeley Master Plan to provide direct, safe access to parks, recreation areas, mass transit collection points, and other

[1] Miguel Iglesias, City of Berkeley Planning Department, telephone conversation, July 1985.

[2] The Berkeley TRiP Project, Final Report, City of Berkeley, 1982.

places of interest.[1] The project site is not directly served by any designated pedestrian pathways or bikeways. Designated bikeways in the vicinity of the project exist on Milvia, Dana, and Center streets and on Channing Way and Telegraph Avenue.

2. IMPACTS

The following section discusses the potential impacts of the proposed Courtney Building, including long-term effects on street traffic, transit, parking, and pedestrian activity; and short-term construction period effects. A **cumulative** impact analysis of the project combined with other proposed development projects to be served by the same central area transportation system is also included. The horizon year for the analysis is 1990. The assessment emphasizes the project's contribution to and effects on 1990 critical **peak period** vehicular traffic and transit conditions. Thus, future vehicular traffic effects have been estimated with emphasis on the evening peak-hour period (4:30–5:30 PM), which approximates the peak use hour on the local street system (primarily as a result of cumulative residential trip generation). Project transit impacts are described with emphasis on the peak 2-hour PM period.

a. Travel Demand Analysis

(1) Trip Generation. The proposed Courtney Building was evaluated based on an assumed completion date prior to 1990. The proposed project as currently proposed would consist of 12,050 gross square feet (GSF) of retail space and 84,950 GSF of office space. The estimated trip generation characteristics of the project are calculated in Table 14. As proposed, the project would generate a total of 2,480 person trips per day, of which approximately 445 would be during the PM peak hour.

Table 14
PROJECT TRIP GENERATION

Use	Daily Person Trips	PM Peak Hour Person Trips				PM Peak Hour Vehicle Trips
		Auto	Transit	Other	Total	
Office	1,615	220	105	20	345	195
Retail/Commercial	865	65	30	5	100	60
TOTALS	2,480	285	135	25	445	255

SOURCE: DKS Associates, 1985.

[1] Berkeley Master Plan, City of Berkeley, adopted June 1977.

(2) Trip Mode Split and Distribution. Table 15 summarizes the anticipated breakdown ("split") of total project trips into the various travel modes, and the likely distribution of these trips among various major destinations. A single trip generation and distribution pattern is described for both office and retail uses, reflecting the fact that these two uses can be expected to generate their highest peak flows in the same outbound PM peak period. The distribution of trips is based upon the most recent Metropolitan Transportation Commission (MTC) "Journey to Work" data developed for the Berkeley area (MTC Zone 550). Due to the commercial character of the proposed development, the majority of the trips would be travelling away from, rather than to, the project site during the PM peak period. The implications of these travel patterns are discussed in greater detail in subsequent sections pertaining to each mode.

Table 15
PROJECT TRIP MODE SPLIT AND DISTRIBUTION--PM PEAK HOUR

Mode	Destinations	Vehicle Trips	Total Person Trips
Auto	Berkeley	80	90
	Central Contra Costa	25	25
	South Bay	95	105
	North Bay	45	50
	San Francisco	10	15
	Subtotals	255	285
AC Transit		--	45
BART		--	90
Other		--	25
TOTALS		255	445

SOURCES: DKS Associates, based upon:
(1) "MTC 550 Zone Journey to Work Trip Tables," 1980; and
(2) "MTC FCAST Travel Demand Models," 1977.

(3) Cumulative Development. As described in the Land Use and Market Factors section of this EIR, there are a number of development projects in the Berkeley downtown area that have been completed in the last few years, are now under construction, or have been approved or proposed and are expected to be completed by 1990. Figure 17 shows the location of those projects in the central area vicinity. These projects are listed in Table 16. These developments are projected to generate a total of 18,190 additional person-trips per average weekday, including 2,760 person-trips and 1,390 vehicle trips during the PM peak hour.

Table 16
CUMULATIVE DEVELOPMENT: OTHER PROJECTS INCLUDED IN THE 1990 TRAFFIC ANALYSIS

Map Number (Fig. 17)	Development	Status	Size-Use	Daily Person Trips	Peak Hour Person Trips	Peak Hour Vehicle Trips
1.	**Project**	--	--	--	--	--
2.	University Hall Addition, Oxford/Addison	Proposed	60,000 GSF--Office	1,140	245	85
3.	Oxford House, 1899 Oxford Street	Proposed	34 DUs--Residential	510	50	15
4.	U.C. Life Sciences Building Addition, central campus	Proposed	194,000 GSF--Office	300	65	35
5.	U.C. Biochemistry Annex, Hearst near Oxford	Proposed	170,000 GSF--Office	290	60	35
6.	ELS Building, 2030 Addison Street	Approved	28,000 GSF--Office	530	115	65
			10,000 GSF--Retail	720	85	50
				1,250	200	115
7.	City Center Hotel and Convention Center	Approved	99,000 GSF--Hotel	3,990	215	130
			37,000 GSF--Office	700	105	65
			10,300 GSF--Retail	740	165	100
				5,430	485	295
8.	Constitution Square, 1401 Lakeside Drive	Under Construction	16,000 GSF--Office	305	65	20
			8,000 GSF--Retail	575	70	20
				880	135	40
9.	Golden Bear Building University Avenue at Milvia Street	Under Construction	118,000 GSF--Office	2,240	485	200
			25,000 GSF--Retail	1,800	220	120
				4,040	705	320

Table 16, **continued**
CUMULATIVE DEVELOPMENT: OTHER PROJECTS INCLUDED IN THE 1990 TRAFFIC ANALYSIS

Map Number (Fig. 17)	Development	Status	Size-Use	Daily Person Trips	Peak Hour Person Trips	Peak Hour Vehicle Trips
10.	Berkeley Commercial Realty, 2150 Kittredge Street	Under Construction	20,000 GSF--Office 4,000 GSF--Retail	380 290 670	80 35 115	45 20 65
11.	U.C. Cory Hall 5th Floor Addition, Hearst Avenue	Under Construction	28,000 GSF--R&D	30	5	5
12.	U.C. College of Chemistry Unit III, University Drive near Gayley Road	Under Construction	92,000 GSF--R&D	100	20	15
13.	Berkeley Towers, 2120 University Avenue	Completed	38,000 GSF--Office 7,000 GSF--Retail 1,225	720 505 215	155 60 120	85 35
14.	Berkeley Armory Building, 1950 Addison Street	Completed	27,000 GSF--Office	515	110	60
15.	Teknekron Building, 1701 Milvia Street	Completed	34,000 GSF--Office	645	140	75
16.	Merrill-Lynch Building 2001 Addison Street	Completed	28,970 GSF--Office	550	120	65
17.	The Tepping Realty Building	Completed	22,350 GSF--Office	420	90	50
	TOTALS			18,190	2,760	1,390

SOURCE: DKS Associates based on list of products developed by Wagstaff and Brady, July 1985.
GSF = Gross Square Feet.

In addition to the cumulative downtown development, several new developments are proposed for, or are under construction on, the campus of the University of California. These developments include new structures, renovations, and additions to existing structures. The projects will be occupied primarily by faculty, student, and staff people who are now housed in other over-utilized or obsolete facilities on campus.[1] Few additional trips will be added to the Berkeley CBD area circulation system as a result of these on-campus improvements. (The University Hall Addition is an off-campus project.) Also, the regional travel patterns of the personnel in these new buildings would remain essentially unchanged, due to the proximity of the new and old activity sites.

Four of these university projects, the Life Sciences Building Addition, the Biochemistry Annex, the Cory Hall 5th Floor Addition, and the U.C. College of Chemistry Unit III, are included in Table 16. The table indicates that the latter two will have negligible transportation impacts.[2]

b. Traffic Impacts

(1) Local Street Intersections. In consultation with the City of Berkeley Traffic Engineering Division, nine key intersections in the project vicinity were selected for detailed analysis (Figure 38). The estimated future traffic volumes for each intersection were projected to 1990 based on: (a) projected cumulative trip generation figures developed in Table 16, (b) manual turning-movement counts performed by the EIR traffic consultant for the earlier Fuel Efficient Traffic Signal Management Study (February 1984), and (c) counts taken for the 1984 Fuel Efficient Traffic Signal Study. Based on these estimated cumulative traffic volumes, levels of service and volume-to-capacity ratios were determined for the local evening peak-hour period (4:30–5:30 PM).[3]

Projected 1990 intersection performance ratings for the nine key intersections are listed in Table 18. These Table 18 scenarios provide a direct comparison of traffic flows at critical times **with** and **without** the project. The 1985-to-1990 traffic increases in Table 18 are due to the combination of: (1) development projects in the downtown that have been recently completed, are now under construction, or are expected to be completed by 1990 (i.e., have been approved or proposed) as listed in Table 16; (2) the several new developments under construction on, or proposed for, the University of California, as also listed in Table 16; and (3) areawide or background traffic increases as a result of other anticipated growth in the cen-

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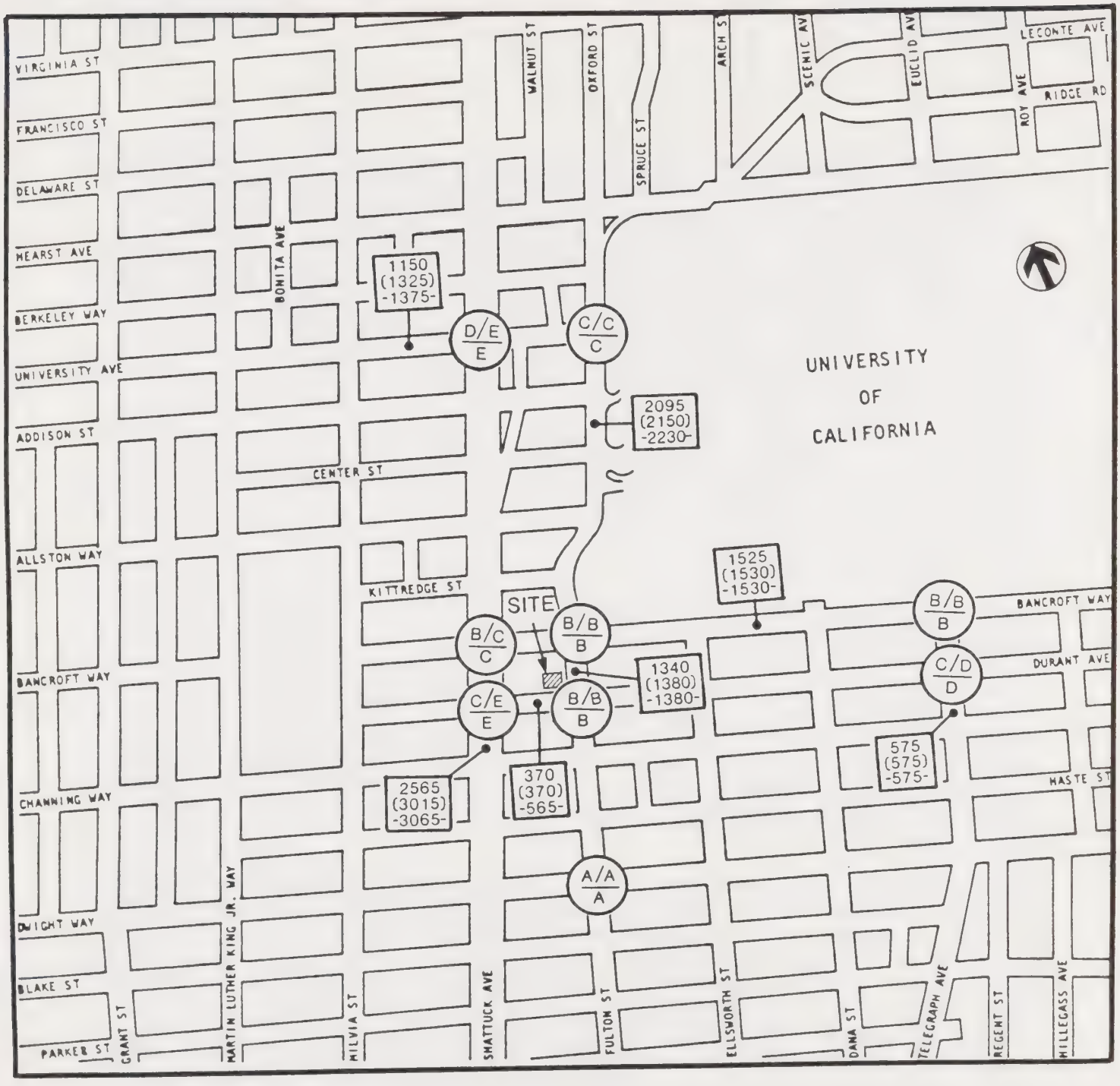
[1]Dorothy Walker, Associate Director, U.S. Berkeley Campus Planning Office, telephone conversation, July 1985.

[2]Additional vehicle trips generated by the LSB Addition and Biochemistry Annex were determined from the number of additional parking spaces provided by the projects (67). Trips for Chemistry Unit III were taken from the project EIR. The Cory Hall figures were extrapolated based on the Chemistry Unit III figures.

[3]The determination of volume-to-capacity ratios and levels of service was completed using "critical movement analysis" methodologies described in "Interim Materials on Highway Capacity," Transportation Research Board, Circular No. 212, Washington, D.C., January 1980.



370	A	1984
(370)	/A	1990 BASE CASE
-565-	$\overline{A}$	1990 BASE CASE WITH PROJECT

FIGURE 38

LOCAL P.M. PEAK HOUR TRAFFIC VOLUMES AND LEVELS OF SERVICE

Table 17
LEVEL OF SERVICE INTERPRETATION

Level of Rating Service	Description	Average Vehicle Delay (Seconds)	Volume to Capacity Ratio
A	**Free Flow.** No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Insignificant delays.	0–16	0.0–0.59
B	**Stable Operation.** An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. Minimal delays.	16–22	0.60–0.69
C	**Stable Operation.** Major approach phase may become fully utilized. Most drivers feel somewhat restricted. Acceptable delays.	22–28	0.70–0.79
D	**Approaching Unstable.** Drivers may have to wait through more than one red signal indication. Queues develop but dissipate rapidly, without excessive delays.	28–35	0.80–0.89
E	**Unstable Operation.** Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. Significant delays.	35–40	0.90–0.99
F	**Forced Flow.** Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections. Excessive delays.	40 or greater	1.00 and above

SOURCE: "Highway Capacity Manual," Transportation Research Board, Special Report No. 87, Washington, D.C., 1965. "Interim Materials on Highway Capacity," Transportation Research Board, Circular No. 212, Washington, D.C., January 1980.

Table 18
PROJECTED 1990 INTERSECTION PERFORMANCE WITHOUT AND WITH PROJECT
Weekday PM Peak Hour--Level of Service, Volume-to-Capacity Ratio

Street Intersection	1984 Existing	1990 Without Project	1990 With Project
1. Shattuck Avenue & University Avenue	D (0.82)	E (0.96)	E (0.97)
2. Oxford Street & University Avenue	C (0.74)	C (0.75)	C (0.77)
3. Shattuck Avenue & Bancroft Way	B (0.62)	C (0.74)	C (0.75)
4. Fulton Street & Bancroft Way	B (0.63)	B (0.64)	B (0.64)
5. Shattuck Avenue & Durant Avenue	C (0.78)	E (0.90)	E (0.90)
6. Fulton Street & Durant Avenue	B (0.67)	B (0.68)	B (0.68)
7. Fulton Street & Dwight Way	A (0.44)	A (0.51)	A (0.51)
8. Telegraph Avenue & Bancroft Way	B (0.62)	B (0.62)	B (0.62)
9. Telegraph Avenue & Durant Avenue	C (0.78)	D (0.80)	D (0.80)

SOURCE: DKS Associates, July 1985.

tral area and community as a whole (estimated at 3 percent[1]). Although no one project by itself is responsible for degrading a level-of-service rating by a full letter, all of these factors combined will have the cumulative level of service impacts indicated on Figure 38 and in Table 16 without the project.

Under the 1990 scenario **without** the Courtney Building, two intersections, **Shattuck Avenue/University Avenue** and **Shattuck Avenue/Durant Avenue** would operate at level of service "E" during the PM peak hour. One additional intersection, **Telegraph Avenue/Durant Avenue**, would operate at level of service "D". These conditions would represent a moderate increase in congestion over levels which currently exist in the Shattuck Avenue and Durant Avenue corridors serving the Berkeley downtown area.

Table 18 also indicates that the 1990 scenario **with** the Courtney Building would not bring additional decreases in levels of service (i.e., a noticeable worsening) from the 1990 levels without the project. The table reflects the finding that relatively modest increases in traffic would be added by the project to intersections serving the project site.

(2) Regional Access Points. Regional vehicular traffic approaching the project site would do so via a number of access points to the Berkeley area. The impact of project-generated traffic on these regional access points was a concern raised in

[1] ABAG projects a 2.34 percent 1985–1990 increase in Berkeley employment, a 0.4 percent increase in households, and a 1.1 percent decrease in population. For conservative impact assessment purposes, a "background" 1985–1990 traffic volume increase of 3 percent has been used.

the Scoping Session for this EIR. The two access points of greatest concern are the Ashby Avenue/I-80 and University Avenue/I-80 interchanges. In addition, concerns were raised regarding project effects on two related roadway links--Ashby Avenue and Tunnel Road.

Traffic increases from cumulative downtown growth through 1990 are expected to have a noticeable impact on these regional access facilities. The most significant impact will occur at the southbound onramp of the Ashby/I-80 interchange. This onramp is currently operating at 73 percent of capacity in the PM peak hour. The anticipated addition of approximately 305 cumulative vehicle trips to the ramp by the year 1990 will increase the total volume to within 93 percent of the ramp's capacity. Of the total additional trips expected to be using this southbound ramp, 4 percent would be generated by the Courtney Building. The impact of cumulative traffic increases on the northbound offramp would be negligible.

At the University Avenue/I-80 interchange, the ramps which will be affected by cumulative central area development include the southbound on- and offramps and the northbound onramp. These ramps are currently operating at between 37 and 64 percent of capacity. The majority of the projected additional cumulative traffic would use the northbound onramp, causing traffic volumes there to rise from 45 to 58 percent of ramp capacity. Of the total additional traffic using the northbound onramp by 1990, 4 percent would be generated by the Courtney Building.

Traffic would move between downtown Berkeley and the Ashby Avenue/I-80 interchange through the Ashby Avenue corridor. Currently, this constrained corridor carries almost 2,100 vehicles in both directions during the peak hour. Cumulative 1990 traffic additions are expected to increase this volume by over 300 vehicles or 14 percent. Courtney Building traffic would be responsible for about 3 percent of the total 1985–1990 traffic addition.

Project traffic traveling to Contra Costa County and southeast Alameda County would use Tunnel Road to reach State Route 24 and/or Interstate 580. This two-lane road currently carries 4,050 vehicles in both directions in the peak hour. Cumulative 1985-to-1990 traffic additions are expected to increase this volume by more than 350 vehicles, a 9 percent increase. Courtney Building traffic would be responsible for about 1 percent of this traffic increase.

c. Transit Impacts

(1) AC Transit. Transit ridership levels are commonly expressed in terms of "load factors." The load factor is the ratio of passengers to capacity. Table 19 shows the projected load factors on AC Transit's downtown Berkeley lines in 1990 with and without the proposed project. The projected transit trip distributions used in the table are based on existing evening peak ridership patterns from the CBD. Based on the mode "split" assumptions in Table 15, the Courtney Building could be expected to generate approximately 65 additional riders on AC Transit during the PM peak hour in downtown Berkeley.

Table 19 indicates that by 1990, PM peak period ridership increases on AC Transit, including project-related increases, are expected to increase the average load fac-

Table 19
PROJECTED 1990 AC TRANSIT PEAK HOUR LOAD FACTORS[a] WITHOUT AND WITH PROJECT
PM Peak Period Direction

Bus Stop	Routes	Existing Load Factors[a]	1990 **Without** Project[b]	1990 **With** Project[c]
1. Shattuck/Dwight	33, 37, 43, F	.35	.41	.42
2. Warring/Parker	37U, 65	.19	.23	.23
3. College/Parker	51	.81	.95	.97
4. Telegraph/Derby	40	.45	.53	.54
5. MLK/University	37, 43, 51	.77	.90	.91
6. Shattuck/Hearst	33, F	.39	.46	.46
7. MLK/Hearst	7, 67	.27	.32	.33
8. MLK/Dwight	15	.31	.36	.37
AVERAGES		.46	.54	.55

SOURCE: DKS Associates, July 1985.

[a]Load factor is the ratio of passengers to capacity. Seating capacity is assumed to be fixed over the period.
[b]Assumes completion and occupancy of all projects identified in Table 16.
[c]Assumes completion and occupancy of all projects identified in Table 16, plus the Courtney Building.

tor from the current level of .46, to an average level of .55. Load factors are not expected to exceed 1.0 on any of the corridors serving the central district with or without the project, indicating that additional capacity would still be available under either scenario. This finding is conservative in that it assumes no capacity increase or spreading of the peak period.

These projected peak period load factors are still well below AC Transit's maximum load factor objective of 1.25. On the other hand, Table 19 indicates that AC Transit's service objective of keeping load factors under 1.25 percent during peak half-hour periods could be exceeded on certain individual lines, including routes 37, 43, and 51, with or without the project. AC Transit is reacting to such potential passenger overloading problems by reassigning equipment. For example, schedule revisions are planned to go into effect for the 51 line in the fall of 1985.[1] Table 19 indicates that the Courtney Building would, by itself, have a minimal effect on peak period direction AC Transit load factors.

[1] AC Transit Five Year Plan 1985-89, pg. VIII-21.

(2) BART. By 1990, BART system capacity is expected to increase by about 71 percent,[1] thereby offsetting the ridership growth and achieving the reductions in peak period load factors shown in Table 20. The system capacity increases projected by BART are based on consideration of peak hour/peak travel direction expectations, transbay operational constraints, and anticipated fleet size. As a result of related system limitations, and in light of projected ridership increases, BART has for planning purposes revised its previous service objective standard of a

Table 20
PROJECTED 1990 BART LOAD FACTORS (1990) WITHOUT AND WITH PROJECT
PM Peak Period/Peak Direction

Location	Routes/Direction	Existing Load Factor[a]	Projected Load Factors[d] 1990 Without Project[b]	1990 With Project[c]
East of MacArthur Station	Daly City to Concord	1.41	1.06	1.06
North of Berkeley Station	Daly City to Richmond	.98	.73	.73
	Fremont to Richmond	.58	.44	.44
South of Lake Merritt Station	Daly City to Fremont	1.48	1.10	1.10
	Richmond to Fremont	1.19	.93	.94
West of San Francisco Civic Center	Daly City (all lines)	.91	.66	.66

SOURCE: DKS Associates.

[a]From Table 12.
[b]Assumes a 1.0 percent annual background increase, a 2.7 percent annual transbay increase, and a 1.2 percent annual westbay increase, due to the combination of San Francisco CBD growth and completion and occupancy of all projects in Table 16.
[c]Assumes a 1.0 percent annual background increase, a 2.7 percent annual transbay increase, and a 1.2 percent annual westbay increase, due to San Francisco CBD growth, completion and occupancy of all projects in Table 16, and completion of Courtney Building.
[d]Presumes a 71 percent capacity increase by 1990.

[1]BART 1984 Short Range Transit Plans, June 21, 1984. Assumes completion of train control modifications, fire hardening, the Daly City turnback and Serramonte Yard, and delivery of 150 new C-cars.

1.30 load factor,[1] and now assumes 1.50 to be the average peak hour load factor which will be tolerated by passengers.[2]

Table 14 indicated that the proposed project could be expected to generate approximately 135 evening peak period (two-hour) BART trips. The majority of these trips would be outbound from the Berkeley CBD.

Table 20 shows projected load factors on BART lines serving the Berkeley central district in 1990 with and without the proposed Courtney Building. Under the 1990 base case scenario, i.e., cumulative increases **without** the project, the table indicates that BART evening peak two-hour period peak-direction load factors are expected to decline on all lines (by between 21 and 27 percent relative to current 1985 levels). This projection assumes the following: (a) full occupancy of all projects approved or under construction in downtown Berkeley, except the Courtney Building, (b) a 2.7 percent annual transbay ridership increase due to anticipated growth in the San Francisco CBD, (c) a 1.2 percent annual westbay ridership due to anticipated San Francisco CBD growth,[3] and (d) a 1 percent annual background growth reflecting non-CBD growth. Table 20 indicates that load factors on the various lines would range from .44 to 1.10, with load factors on the Daly City to Concord, and Daly City to Fremont lines being the most heavily patronized. The table also indicates that the projected load factors **with** the project would not change significantly; i.e., the Courtney Building would not have a noticeable relative impact on these 1990 load factors, since its proportion of total BART ridership would be negligible. Although the projected load factors fall within the range of BART's estimated 1.5 passenger tolerance load factor, the Table 20 figures indicate that this load factor may be exceeded during the peak half-hour periods on the Daly City to Concord, Daly City to Fremont, and Richmond to Fremont lines.

To achieve the 1.50 load factor objective, BART will have to adjust and balance passenger loads among certain lines as confirmed by the figures in Table 20. For example, reassignment of some cars from the Fremont to Richmond line may be required to alleviate overloading on the Daly City to Fremont line. In addition, as a development mitigation measure, spreading of the peak BART ridership period should be encouraged through employer-based flexible work hour programs to broaden and diffuse peak period departures.

d. Parking Impacts

(1) Proposed Parking Supply Changes. The project site currently provides 70 off-street parking spaces for public use on a daily basis at $3.00 per day ($1.00 after 6:00 PM). Fees are collected in assigned pay boxes; no attendant is present. Typically, the lot is 80 to 100 percent full, although during the summer months demand may drop to 60 percent of capacity. About 10 percent of the stalls are used for long-term storage of concession trailers, boat trailers, and so on.

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[1] BART 1982-1986 Five Year Plan, August 1982.

[2] BART 1984 Short Range Transit Plan, June 21, 1984.

[3] Based on work developed by DKS Associates for the California Department of Transportation: "I-280 Transfer Concept Program--Final Working Paper 1.5.6," July 18, 1983.

As part of the proposed Courtney Building project, all of the 70 existing parking spaces would be removed. The underground parking garage to be developed as part of the project would provide 195 new parking spaces.

As previously noted, the parking garage would be attendant controlled. Attendant-controlled garages can cost up to 40 percent more to operate than self-park garages.[1] In addition to the higher cost of operation, attendant parking is also perceived by some motorists to be inferior in terms of convenience and control to self-parking. With self-parking, the motorist can lock the car and take the keys; care of the car is not entrusted to a stranger, and the retrieval time is often quicker than with attendants.

Thus, parking demand for the Courtney Building garage may be limited due to parking charges which are comparatively higher than rates at available nearby parking facilities, and due to the other perceived shortcomings of attendant parking. These parking facility shortcomings may translate into project encroachment on neighborhood parking. On the other hand, building management would view the garage as an important market amenity, and would probably provide assigned parking spaces to most tenants, with associated costs covered by rents. In addition, a parking "validation" approach may be employed to provide visitor parking at no charge. To the extent that such measures meet the demand of the various tenants (employees and visitors), potential offsite parking encroachment would be reduced or eliminated.

(2) Relationship to Current City Parking Requirements. The proposed 195-stall parking garage would slightly exceed the number of offstreet parking stalls required by current Berkeley zoning regulations.[2] The current city parking requirement for the C-2 District is two spaces per 1,000 gross square feet of new construction, for a total parking requirement of 194 spaces. In the past, however, it has been the city's policy that **tandem parking spaces** do not count towards meeting the parking requirements set forth in the Zoning Ordinance (Parking, Loading, and Access Standards of the City of Berkeley, p. 4).

(3) Transportation Services Fee. A Transportation Services Fee (TSF) is normally assessed by the City of Berkeley for new commercial projects to support transit use, ridesharing, and bicycling, and thus reduce the demand for parking. The TSF may be paid in two ways, either as a lump sum payment of $2.00 per square foot of gross floor area, or over a period of 30 years at $0.20 per year per square foot of gross floor area per year. Under the first payment method, the Courtney Building assessment would be $194,000. Under the second method of payment, an initial annual payment of $19,400 would be required, with subsequent payments of similar amounts (adjusted for inflation) over the next 29 years.

(4) Estimated Long Term Parking Demand. Project parking demand characteristics are summarized in Table 21. The parking demand of the Courtney Building as

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[1] Transportation and Traffic Engineering Handbook, Institute of Traffic Engineers, 1976, p. 694.

[2] The City of Berkeley Zoning Regulations, revised January 1, 1984. Ordinance 3018-NS.

currently proposed has been estimated at 230 spaces. Office employee and visitor parking demand calculations were based on an estimated demand of 2.2 parking spaces, per 1,000 GSF of the office floor area. The typical suburban office parking demand rate was adjusted to reflect auto usage patterns in the Berkeley central district. (The parking demand calculation methodology used in this analysis is further described in Appendix B.) Retail parking demands will vary based upon the type of retail use. Typical parking demand rates for retail workers and shoppers have been identified by Berkeley TRiP[1] at 3.6 parking spaces per 1,000 GSF.

Table 21
ESTIMATED PARKING DEMAND
Courtney-Berkeley Office Building

Building Use	Size	Parking Demand	Onsite Supply	Onsite Deficit
Office	85,000 GSF	187		
Retail Commercial	12,000 GSF	43	--	--
	TOTALS	230	195	35

SOURCE: DKS Associates.

Based on the estimated parking demand in Table 21, the Courtney Building as currently proposed could result in a local parking supply shortfall of 35 spaces. The shortfall would be eliminated if ridesharing captured 14 percent of the project-generated trips, and transit accounted for 33 percent of the trips. Other studies have found higher percentages of ridesharing and transit usage in the Berkeley CBD.[2]

In addition, the peak parking demand of 230 spaces may not materialize due to the different peaking times possible for retail and office uses. Depending on the type of retail use, retail parking demand during normal daytime (weekday) hours could be 60 percent of the peak retail demand. Peak retail demand could come on the weekend or during weekday evenings when office parking demand could be expected to decline to 10 percent of the typical daytime weekday demand.[3]

(5) Shared Parking. The concept of shared parking is that overall parking demand can be reduced because of the time-of-demand characteristics of various land use activities. The use of shared parking may be appropriate for the Courtney Building

[1] The Berkeley TRiP Project, Final Report, City of Berkeley, 1982.
[2] Ibid.
[3] Flexible Parking Requirements, American Planning Association, 1983.

depending on the principal operating hours of the retail uses. Shared parking is a tool that allows for the reduction in total parking spaces required based on when various project demands for parking occur. Parking demand for office uses would typically be heaviest on weekdays between 9 AM and 4 PM. During this same weekday period, demand for retail parking could be 40 percent less than levels anticipated during the peak retail activity periods, i.e., weeknights and weekends.[1] This difference in parking needs for retail and office would translate into an overall reduced need for parking. In this case instead of 230 parking spaces, a total of 213 spaces would suffice.

In addition to the onsite shared parking concept, the project site represents an optimal location for a parking "reservoir" on the periphery of both the central area and the university. The office-oriented project parking garage would present an opportunity to relieve off-peak demand "surges" related with other nearby central area and university activities. This benefit would be due to the low weeknight and weekend demands for project office parking (10 percent of daytime demand), i.e., at the times when extra parking may be needed for patrons of local theaters, movies, Edwards Field track events, other university events, and shopping.

(6) Parking Displacement. The Courtney Building would eliminate 70 long-term parking spaces currently provided on site. Although the parking survey completed for this report indicates that all of the 70 displaced spaces could be accommodated in public offstreet parking within four blocks of the site, the project would nevertheless result in a loss of 70 spaces (the proposed 195 garage spaces would meet code requirements for the new use alone).

(7) Bicycle Parking. The proposed project includes parking provisions for 50 bicycles. This amount slightly exceeds the bicycle parking requirements of the City of Berkeley Zoning Regulations. In the C-2 District, one bicycle parking space (either racks or lockers) is required for each 2,000 feet GFS for a total parking requirement of 49 units.

Beyond such regulatory requirements, bicycle needs are typically considered in the planning and design of such projects in terms of some reasonable ratio to the number of auto parking spaces provided. In most instances, the ratio used is one bicycle parking space for every ten auto spaces, although in particularly high bicycle use areas, the ratio can be as high as three bicycle spaces for every ten auto spaces (Palo Alto).[2] The high degree of bicycle use in Berkeley would indicate that parking should be provided at the rate proposed, 2.5 bicycle parking spaces per 10 auto parking spaces.

Bicycle facilities should be of the Class I (Highest Security) or Class II (Medium Security) type. In a Class I bicycle facility, bicycles are stored in a locker or locked room, are checked with an attendant and are under constant surveillance, or

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[1] Miguel Iglesias, City of Berkeley Planning Department, telephone conversation, June 1985.

[2] The Denver Bicycle Parking Study, Mountain Bicyclist's Association, Inc., November 1979.

are allowed to be taken with the rider into the building and stored in an office. A Class II facility consists of a bicycle rack that secures the frame and both wheels of the bicycle, without cable or chain, and provides a shield over the user's lock. (In addition to secure storage, some modern employee facilities have been including locker rooms with showers to increase the convenience and comfort of bicycling to work.)

The ground-level floor plan proposed for the Courtney Building (Figure 7) indicates that access to the 50 bicycle spaces would be via the Durant Avenue driveway ramp. One 50-space parking area would be located in a ground-floor corner adjacent to the ramp. It appears that bicyclists could then enter the building elevator lobby directly from the parking level, which would be preferable to having to walk around to the Fulton Street entrance. In addition to this advantage, the proposed bicycle parking scheme would have the following disadvantages:

(a) The proposed bicycle parking area would not be easily visible from the street. Prominent signage would be necessary to alert cyclists to the availability of parking.

(b) the location of all 50 spaces at this one concealed ground-floor location would be inconvenient for retail customers, commercial service patrons, clients, and other Courtney Building visitors who wish to come by bicycle.

(c) The location of the bike parking area as shown may be hazardous to reach due to poor ramp visibility, and conflicts between entering and exiting pedestrians, bicycles, automobiles, and trucks.

(d) Since the proposed bicycle parking location would be concealed from view of the attendant booth on level 1 (see Figures 7 and 11), a Class I (Highest Security) rating would not be achievable with this design.

(8) Motorcycle Parking. The proposed parking garage layout does not include spaces designated for motorcycle use.

(9) Construction Period Parking. During the initial construction phases, the local parking deficiency as a result of the project would be:

(a)	Spaces displaced by the construction of the building:	70
(b)	Spaces occupied by construction worker cars:	45
(c)	Total deficiency:	115

Since construction workers would arrive early, it can be assumed that as many as 45 existing parking spaces would be occupied by these temporary additional local employees (assuming that the estimated 71 project construction jobs from Table 9 would translate into a need for approximately 45 parking spaces). Once the garage component of the Courtney Building was completed, construction personnel could then park onsite during the remainder of the project construction period.

e. Service Vehicle Impacts

The proposed project could be expected to generate about 20 service vehicle trips to and from the site per day, with at least one of these trips occurring during the peak hour.[1] The City of Berkeley Zoning Ordinance requires a total of two off-street loading berths for the amount of office/retail square footage to be constructed onsite.

The proposed building design indicates two offstreet loading docks, satisfying city code requirements (see Figure 7). The two loading docks would be totally enclosed within the ground floor of the building with access directly off Durant Avenue via the garage driveway at the southwest corner of the site.

Truck loading docks and auto garages are usually served by separate entrances. The Courtney Building application proposes a single entrance to serve both functions. As a result, trucks using the project loading docks could conflict with vehicles entering and leaving the garage. To mitigate this potential conflict, a loading dock attendant should be assigned to direct vehicles during truck parking.

The loading spaces provided would accommodate trucks up to 30 feet in length. Longer trucks would protrude into the parking garage entrance lane. The typical semi-trailer truck is 40 feet long, and some are 50 feet long. Deliveries to the project by trucks over 30 feet could be expected at a rate of about one per day.[2] To avoid related vehicular conflicts, an attendant should be stationed at the entrance drive when a truck over 30 feet is parked at the loading dock. If possible, the loading dock nearest Fulton Street should be cut back to a length equal to the shorter dock. This design revision would provide an additional 10 feet of storage space and should prevent trucks up to 40 feet long from blocking entering auto traffic.

The loading bay arrangement would require that trucks maneuver backwards into the docks from Durant Avenue. In light of the low number of service vehicles and the relatively low traffic volumes on Durant Avenue, and the number of northbound lanes available for through traffic (three), these loading activities are not expected to result in a major disruption of projected 1990 peak traffic flows.

f. Pedestrian Impacts

Currently, sidewalks and crosswalks adjacent to the site are free flowing during the peak afternoon period (see flow summary in Table 13). The proposed project would generate approximately 95 pedestrian trips during the midday peak 15-minute period. With this additional project-generated traffic, the surrounding pedestrian pathways would remain free flowing.

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[1] San Francisco Center City Pedestrian and Goods Movement Study, Wilbur Smith and Associates, September 1980.

[2] Kaiser Center Final Environmental Impact Report, EIP Corporation, November 1982.

The most heavily utilized pedestrian corridor adjacent to the site is Fulton Street, with the greatest concentration of activity on that route at the Bancroft Way intersection. The most heavily utilized corridor for project pedestrian trips is expected to be Shattuck Avenue (via Durant Avenue). Shattuck Avenue provides direct access to the Berkeley BART station and most AC Transit stops.

All sidewalks in the project vicinity could be expected to continue to operate at free flow conditions in 1990, with relatively moderate increases in levels of pedestrian activity.

g. Site Plan Evaluation

(1) Site Plan Characteristics. The subsurface parking facility would be operated by an attendant. A total of 195 parking spaces would be provided on the 2½ levels, including at least 150 tandem spaces. The project block is currently occupied by the following: three banks (Security Pacific Bank, Citicorp Savings, and California First Bank), two public utilities (Pacific Bell and the East Bay Municipal Utility District), a cafe, a photo shop, and two apartment buildings. The remainder of the project block is covered by surface parking lots. The project site itself is a surface parking lot with capacity for 70 vehicles. It has five access driveways, three onto Fulton Street and two onto Durant Avenue. This surface parking lot will be eliminated with the development of the Courtney Building. The building site plan indicates a single access point on Durant Avenue.

Auto and bicycle access for the project would be via the one access drive on Durant Avenue. The driveway, located 95 feet from Fulton Street, would provide access to a 2½-level parking garage located below grade. Pedestrian access to the first floor lobby would be located off Fulton Street.

(2) Vehicle Access. The project driveway is 95 feet from the intersection of Fulton and Durant. Generally, driveways should be located between 100 and 150 feet from intersections. The driveway for the Courtney Building should function satisfactorily, however, since Durant Avenue is a one-way street with three travel lanes and moderate traffic levels. Given these street width and travel level characteristics, it is unlikely that project traffic would be hindered from accessing the site. Durant Avenue's one-way configuration also reduces potentials for traffic conflicts by eliminating any opposing traffic flow. However, drivers leaving the garage would need to be clearly reminded that Durant Avenue is a one-way, eastbound street.

The proposed project access would not modify perimeter street circulation. Fulton Street would continue to operate two-way north of Durant Avenue and one-way south of Durant Avenue. Durant Avenue would continue to operate one-way eastbound, and Bancroft Way would continue to operate one-way westbound. Of the two access street choices, Durant Avenue is preferable because it has substantially less traffic volume and more surplus capacity than Fulton Street. (Fulton Street 1990 traffic volumes are estimated to be three times higher than Durant Avenue volumes.) Fulton Street is also a designated arterial and is divided by a raised concrete median the length of the block. Thus, locating auto access to the site on Durant Avenue would minimize disruption and conflict with traffic flows on surrounding streets.

(3) Bicycle Access. Although the proposed access point is suitable for auto use, there is a potential for conflict between autos and bicycles using the garage via one shared entry and exit system.

(4) Attendant Parking Method. Attendant parking allows for a 10 to 15 percent increase over self-parking in the number of vehicles which can be stored within a given square footage. The increased storage is achieved through use of tandem stalls and the placement of vehicles where they would be inaccessible to the self-parker. The attendant parking method also reduces vehicle/pedestrian conflicts within the garage. On the other hand, this parking method increases the time needed to store and return vehicles, creating the potential for cars to spill over onto the sidewalk and street. The Courtney Building has adequate stacking space to minimize this problem. (The amount of stacking space required is based on the arrival rate of vehicles during the peak 15 minutes, usually during the morning peak hour. With 195 stalls, vehicles would arrive at the garage at a rate resulting in the need to accommodate between six and seven vehicles on the entrance ramp while waiting to be parked by the attendants. The Courtney Building design shows stacking room for eleven standard size cars.)

All vehicles using the garage would be attendant parked. The layout proposed for the Courtney Building garage would be adequate for attendant operation, given the stall and aisle widths proposed. Stalls near the entrance on the first level would be coned off to prevent drivers from mistakenly parking their own cars. The coned-off stalls would then be filled by attendants when time permitted.

(5) Internal Circulation. Circulation within the garage is adequate. Corner and tandem stalls would be accessible to the attendants parking cars. Based on the number of stalls provided, the entrance ramp should be able to accommodate queues of between six and seven vehicles in order to prevent entering vehicles from spilling over onto Durant Avenue during the AM peak hour. (The entrance ramp has stacking room for eleven standard size cars.)

(6) Perimeter Transit Service. There are presently no transit stops located adjacent to the site. A number of transit stops for five AC Transit lines are located within a five-block radius of the site. The proposed project will have no direct effect on transit routing around its perimeter and would not warrant any special transit provisions.

(7) Service Vehicle Access. The proposed project includes two service vehicle loading spaces off Durant Avenue. Service vehicles would back into the docks from the street. Due to the low traffic volumes and generous street width of Durant Avenue between Shattuck Avenue and Fulton Street, onstreet vehicle maneuvering and backing should not present significant traffic disruption problems.

(8) Pedestrian Circulation. Pedestrian access to the building would be located mid-site on Fulton Street. Providing pedestrian access from Fulton Street orients the building to the major pedestrian flow occurring on Bancroft Way and maximizes pedestrian circulation.

The pedestrian circulation for the project would be focused on the public sidewalks surrounding the site. These sidewalks would be retained and improved. The pedestrian flows of the project can be easily accommodated by the planned sidewalks which would have a minimum unobstructed sidewalk width of 8 feet on Fulton Street and 10 feet on Durant Avenue. The five existing curb-cuts and driveways which each represent a point of pedestrian/vehicular conflict would be reduced by the project to one curb-cut and driveway, resulting in improved pedestrian safety and circulation around the project perimeter.

(9) Passenger Loading. No onsite passenger loading area is proposed in the project design and none is stipulated by code.

h. Construction Period Impacts

The construction of the Courtney Building is expected to take about 12 months. It is estimated that about 90 construction workers would be employed at the site on any given day.

If the construction site is operated as a "closed site," no construction worker parking would be allowed onsite. Based upon experience at the Trans Pacific Centre Phase I construction site in Oakland, it appears that roughly 35 to 50 percent of all construction workers would drive their cars to work at the Courtney Building site. This would generate a temporary demand for up to 45 additional offsite parking spaces.[1] The remaining workers would share rides or take transit to the job site. Daily vehicle trip generation during construction would be about 5 percent of the vehicle trips that would be generated when the building is completed and occupied.

Although the specific street and sidewalk closures for the construction operations are not known at this time, the following general requirements would be applicable:

(1) The parking lane on Durant Avenue would probably be removed adjacent to the building during construction to minimize hazards.

(2) Use of one travel lane on one side of such midrise construction projects is usually required for additional construction related uses. Closure of a travel lane on Fulton Avenue for construction purposes would significantly disrupt normal traffic operations.

(3) Sidewalks adjacent to the construction site would be temporarily closed, disrupting pedestrian traffic unless temporary sidewalks were installed.

(4) Although no street closures are anticipated at this time, temporary closures may be required to place, secure, and safely use major construction equipment (temporary cranes, lifts, etc.).

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[1] DKS Associates estimate assuming 15 percent use transit and 1.7 auto occupancy.

3. MITIGATION MEASURES

a. Measures Included in the Proposed Project

(1) A total of 195 onsite parking spaces would be constructed to meet city code requirements and partially meet the estimated parking demand generated by the mix of office and retail floor space proposed.

(2) Parking for a total of 50 bicycles would be provided onsite to meet city code requirements. The spaces would meet Class II (Medium Security) criteria. The adequacy of these proposed bicycle provisions is evaluated in section 2.d(7) of this chapter.

(3) An onsite service vehicle loading dock, serving two vehicles, would be enclosed within the building at ground level (see Figure 7), with access via the Durant Avenue driveway.

(4) The main pedestrian access to the building would be via the central entry and lobby on Fulton Street. Access to the two ground-level retail spaces would be via an individual entrance for each at the two building corners on Fulton Street.

(5) The ground floor plan would include maintenance of a 13-foot-wide sidewalk along the Fulton Street frontage and a 16'-6" sidewalk along the Durant Avenue frontage; with the proposed street trees and grates, 8'-0" of unobstructed sidewalk would be provided on Fulton Street and 10'-0" of unobstructed sidewalk on Durant Avenue.

(6) The applicant would be responsible for payment of a Transportation Services Fee to the city for use towards support of improved transit use, ridesharing, and bicycling, with the ultimate objective to reduce project-related automobile use and parking demands. The payment may be made in either a lump sum (approximately $194,000 for this project), or in annual payments beginning with $19,400 at the outset, with subsequent similar annual amounts (adjusted for inflation) over the next 29 years.

b. Other Long-Term Recommendations

(1) Improvements to the Citywide Street System. Although the project itself would not create a need for specific offsite street improvements, it would contribute to **cumulative impacts** on the city's street system. The city should consider implementation of **a comprehensive program of street improvements financed on a fair-share basis by fees collected from all future developments contributing to these cumulative needs.** Precise cost amounts assigned to each new project should be determined on the basis of benefit received (relative peak-hour vehicular traffic contribution) and collected through an assessment district, development impact fees, or similar mechanism.

A contribution formula could be adopted for all new development in Berkeley based upon some dollar rate per peak-hour trip. For example, the following table shows

hypothetical contribution ranges per peak-period vehicle trip for the Courtney Building:

Required Contribution per Peak Trip ($)	Courtney Bldg. PM Peak-Hour Trips (from Table 15)	Total Fee
500	255	$127,500
350	255	89,250
175	255	44,625
100	255	25,500

(2) Transportation System Management Program. The applicant should be required to submit to the city a complete description of an aggressive Transportation System Management (TSM) program to reduce adverse project contributions to local cumulative peak-hour vehicular traffic and to local parking demands. (Such a TSM program can also benefit the building owner by increasing the project's market attractiveness.) The TSM program for the Courtney Building could include a combination of carpool coordination and promotion of increased transit ridership; and could also incorporate parking garage management measures to ensure full utilization of that facility. In formulating the Courtney Building TSM program, consideration should be given to the following possible components:

(a) Appointment of a Transportation Coordinator, perhaps an employee of one of the project's larger tenants, who would be assigned responsibility for instituting a traffic and parking reduction program for the entire building in coordination with the citywide TRiP program.*

(b) Promotion of transit use through informational programs and subsidized discount sale of transit passes to building employees.

(c) Promotion of carpooling through Transportation Coordinator assistance in carpool formulation and preferential parking for carpool vehicles.

(d) Provision of an information booth, reception desk, kiosk, or bulletin board in or near the ground-floor lobby where brochures and other information about transit, ridesharing, and other TSM programs would be available. RIDES, the regional ridesharing agency for the Bay Area, could provide information on its programs to assist persons interested in joining a carpool or vanpool.

(e) Promotion among tenants of a flex-time program where employees may choose their arrival and departures between set times, such as 7:00 to 9:00 AM and 4:00 to 6:00 PM.

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* The applicant has already discussed TSM program possibilities with TRiP representatives and is currently developing TSM program proposals based upon these discussions (Courtney).

(f) Periodic surveys of building employees, both to determine the effectiveness of the TSM measures undertaken and to assess the need for revised or additional TSM measures.

(g) Assistance to employees towards new bicycle purchase through group discounts.

(3) Transportation Services Fee. Alternatively or concurrently, the city could use a portion of Transportation Services Fee revenues collected from all new downtown commercial development to hire one or more Transportation Coordinators who would administer a comprehensive TSM program (TRiP) for the entire central area. A comprehensive program of this type could incorporate flex-time programs, vanpooling, and other larger scale methods to reduce central area traffic and parking demands.

(4) Parking Program. Mitigation of project parking impacts on surrounding areas is dependent upon **full utilization** of the proposed parking garage by Courtney Building tenants, patrons, and visitors. The applicant should be required to submit to the city a complete description of the proposed parking program, prepared by a qualified parking consultant, describing how **full utilization** of the facility will be achieved; i.e., what management approach, operating times, attendant schedules (number of attendants per shift), validation approaches, parking fee structures, and other methods will be implemented to ensure that the facility is fully utilized during building operation.

The Police Department has expressed concern with the proposed tandem/attendant method parking approach and states that there should be at least two parking attendants on duty during parking lot operating hours if this method is to be used (see section IV.E.1.b and c of this report).*

Since, in the past, it has been the city's policy not to count tandem spaces towards meeting parking requirements set forth in the Zoning Ordinance, the applicant's parking program must include assurances that (1) **attendant parking** would continue over the long term (i.e., with transfer of building ownership), and (2) any change in the parking approach would have to be approved by the city.

(5) Bicycle Parking. Some percentage of the 50 bicycle parking spaces (12 to 15 percent) should be located in a more convenient outside location to serve retail customers, commercial service patrons, clients, and visitors.

Consideration should be given to relocating the parking facility and/or attendant booth to allow constant surveillance; or provision of bike lockers to achieve a Class I security rating.

If the proposed location of the ground floor bicycle parking area is retained in the final building design: (a) the facility should be well lighted, (b) a diagonally striped and well-illuminated pedestrian crosswalk should be provided between the bicycle

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* Patrick Phelps, Inspector, Crime Prevention, Berkeley Police Department.

parking area and the elevator core, and (c) a sidewalk or striped pedestrian path should be provided on the west side of the parking entrance between the bicycle parking area and Durant Avenue to reduce potential safety conflicts between cars and pedestrians.

(6) Motorcycle Parking. Space for motorcycles should be designated in the garage. A difficult-to-get-to corner area could be used where motorcycle access is possible without displacing as many automobile spaces. Tandem parking spaces for two or three cars could accommodate 15 to 24 motorcycles. These motorcycle provisions would also bring project parking provisions closer to the demand figure identified in this EIR (230 spaces).

(7) Loading. To mitigate potential conflicts between project loading docks and vehicles entering and leaving the Courtney Building, a loading dock attendant should be assigned to direct vehicles and bicycles during truck parking. Also, to mitigate conflicts between trucks in excess of 30 feet in length and the building entrance drive, an attendant should be stationed at the Courtney Building entrance drive when a truck over 30 feet in length is parked at the loading dock.

If possible, the loading dock nearest Fulton Street should be cut back to a length equal to the shorter dock to provide an additional 10 feet of storage space, allowing trucks up to 40 feet long to park at the dock without blocking entering auto traffic.

(8) Signage. Clear signage should be provided at the parking garage exit point notifying departing drivers that Durant Avenue operates one-way eastbound. Clear signage should also be provided at the project entry points notifying bicyclists that secure bicycle storage is available in the parking garage.

c. Construction Period Recommendations

(1) Construction Period Parking Deficiencies. During the initial construction period, this EIR indicates that the project parking demand would be 45 spaces (occupied by project construction workers). The project applicant, in coordination with the construction contractor, should implement a scheme to minimize the local impact of this temporary added parking demand. The scheme might include a shuttle or car pooling at the initial construction phases. Once the garage is built, construction personnel could park onsite during the remainder of the construction program.

(2) Sidewalks. Install temporary sidewalks with protective enclosures for use during the period of construction when sidewalks adjacent to the site are closed.

(3) Blockage of Travel Lanes. If a travel lane is needed for construction purposes, use of a lane on Durant Avenue would be preferable to a lane on Fulton Street.

(4) Traffic Control. Traffic control should be provided when construction requires the closure of any travel lanes.

E. MUNICIPAL SERVICES AND FISCAL IMPLICATIONS

1. POLICE SERVICES

a. Setting

The City of Berkeley Police Department and Fire Department are both under the jurisdiction of the city's Department of Public Safety. Police Department headquarters are located at 2171 McKinley Avenue, about four blocks from the project site. As of July 1, 1985, the department employed 174 people, including 75 on the police patrol force (Nelson, 1985). The Department includes approximately one sworn officer for each one thousand Berkeley residents. About 80,000 calls for service are logged each year.

The project site lies within the Department's Beat 6 and is patrolled by at least one patrol car and a minimum of one officer 24 hours a day. The emergency response time to the project site is 2 to 3 minutes. The project vicinity is considered to be a high crime area (Census Tract 29). The area accounted for 9 percent of the total crimes in Berkeley in 1984 and 11 percent of the reported thefts (Phelps, Soo, and Benjamin, 1985).

b. Impacts

The proposed project could be expected to result in a slight increase in the number of calls for Police Department services. Crimes usually associated with an office building and parking garage include wallet thefts, purse snatches, loitering, bicycle theft, and auto burglary (Phelps, 1985). The proposed ground floor retail and commercial service uses would also increase demands for related police services (Soo, 1985). In addition, the increase in local vehicular traffic generated by the proposed project would result in greater demands for police services related to traffic safety (Nelson, 1985).

The proposed project does not include plans for onsite security or lobby personnel, unless provided by a particular tenant (Tucker, 1985). Private provision of such personnel would decrease the demand for city police services related to nuisance calls, loitering, etc. (Soo, 1985). In addition, the project has no provisions to prevent public access to the restrooms on the upper floors of the building (there would be no restrooms on the first floor), a situation which, with the lack of onsite security guards, may increase the demands for police services (Soo, 1985).

According to the applicant, the project would provide as many full-time parking garage attendants as necessary during operating hours (Tucker, 1985). These attendants would provide security for the garage and for the garage entry to the building. The Police Department believes that the parking approach currently proposed (attendant method, tandem spaces) may not be adequate to handle the level of car

movement that can be anticipated with this kind of building. For such a facility to function adequately and meet anticipated demands for auto movement, the Department believes that several attendants would be required (Soo, 1985).

There are currently at least seven new buildings, in addition to the proposed project, either proposed for development or under construction in the downtown area (see Table 1). If all of these projects are built, their **cumulative impact** on the daytime population and activity level in the central district would result in a need for a minimum of one additional full-time sworn police officer (Soo, 1985).

c. Mitigation Measures

To reduce project-related crime potentials and general demands for city police services, the Police Department suggests that the following features by incorporated in the project (Soo, 1985):

(1) Security personnel and an adequate number of available parking attendants during regular building hours;

(2) A closed-circuit television system in the lobby, in the elevator waiting areas, and on those levels of the garage where there will be no attendant booth;

(3) A warning device for vehicles exiting the garage to reduce the danger to pedestrians and people in wheelchairs;

(4) Stairwell entry restrictions to prevent movements between floors with stairwell exiting allowed only on the first floor; and

(5) Appropriate building design, lighting, and landscaping measures to reduce crime potentials (based on consultation with the Department's Crime Prevention officer).

Project-specific impacts on the police department would have no direct cost implications for the developer. On the other hand, if all of the eight downtown projects currently proposed or under construction are completed and occupied, the developer should be responsible for a fair share of the total additional costs associated with one additional sworn officer (Soo, 1985).

2. FIRE SERVICES

a. Setting

The Berkeley Fire Department (BFD) currently has a staff of 123 persons ("authorized uniform strength"), with 32 fire fighters on duty at any given time. The BFD currently operates seven stations, including seven engine companies, two truck companies, and two ambulances. The two fire stations closest to the project site are Station 2 eight blocks to the northwest at 2029 Berkeley Way, and Station 5 eight blocks to the south at 2680 Shattuck Avenue. Station 2 is normally staffed by one truck company, one engine company, and an ambulance crew, totalling eight personnel per shift. Major equipment at Station 2 includes an 85-foot aerial ladder. Station 5 provides the same staffing and equipment levels as Station 2, except

that its aerial ladders will reach 100 feet. The City of Berkeley currently has a Class 2 Insurance Service Office (ISO) fire insurance rating on a scale of 1(best) to 9(worst).

The average BFD response time for an emergency is 3 to 5 minutes (Brock, 1985). The nearest fire hydrant to the project site is located about one-half block to the south on the east side of Fulton Street. (See Section IV.E.3 regarding the adequacy of fire flow at this hydrant.)

b. Impacts

The proposed project would result in a slight increase in the demand for fire services, although no new personnel or major equipment would be required as a result of the project alone. However, certain additional minor fire-fighting equipment and training would be required for the proposed building type, including self-contained breathing apparatus, a high-pressure air compressor, additional high-rise fire-suppression training courses, and related training equipment (Hiatt, 1985).

The project would also warrant the installation of a fire hydrant on the northwest corner of Durant and Fulton (tapping the water main on Durant), and possible improvements to the Durant Street water main to provide adequate fire flows at the existing Durant Street hydrant and the new Fulton Street hydrant (see EIR section IV.E.3.b.2 regarding fire flow needs.)

Certain provisions indicated in the proposed building design would significantly reduce the potential increase in demand for city fire protection services. For example, the applicant has indicated that an automatic sprinkler system would be installed, even though such a measure is not required by the city's current fire code for buildings under seven stories (Tucker, 1985). The Berkeley Fire Department is currently revising the fire code to require automatic sprinklers for any building over three stories. These new provisions are expected to be enacted by the end of 1985 (Hiatt, 1985). The construction type proposed for the project (Type II fire resistance) would also minimize potentials for increased fire protection demands.

c. Mitigation Measures

The Berkeley Fire Department (Hiatt, 1985) recommends that the following measures be incorporated in the proposed project to reduce fire hazards, minimize demands for city fire protection services, and offset project-related costs to the city:

(1) Installation of a Fire Department approved automatic sprinkler system throughout the building (as already proposed by the applicant);

(2) Installation of a Fire Department approved, electrically supervised, fire alarm system;

(3) Installation of a Fire Department approved smoke-control system with natural or mechanical ventilation for the removal of combustion products, or fire department break-out windows at approved locations;

(4) Separation of all elevator lobbies from corridors, with approved fire separations as required by the fire code;

(5) Installation of a Fire Department approved smoke evacuation system throughout the parking garage;

(6) Installation of a Fire Department approved building water main supply capable of supplying required fire flows to all building floors (fire flow requirements shall be in accordance with "Guide for Determination of Required Fire Flow," published by the Insurance Services Office, 1974);

(7) Installation at developer cost of an additional fire hydrant on the northwest corner of Durant and Fulton, tapping the water main on Durant;

(8) Provision of Fire Department approved access roadways for fire apparatus to within 150 feet of all portions of the exterior walls of the first story of the building; where such an access roadway cannot be provided, additional approved fire protection system or systems shall be provided as required by the Fire Department;

(9) Full conformity with all fire and life safety requirements addressed in the Uniform Building Code;

(10) Provision of posted evacuation routes throughout the building;

(11) Provision of a designated public safety coordinator for the building;

(12) Provision of a complete list of key personnel for the building which is updated regularly and posted near the fire alarm panel; and

(13) Provision of funds to be used toward the purchase of the following items necessary to provide adequate fire protection for the proposed building type (Hiatt, 1985):

(a) Approximately 12 one-hour self-contained breathing apparatus with spare air bottles to equip two engine and two truck companies;

(b) One high pressure air compressor to fill one one-hour air bottle (4,500 cfm);

(c) High-rise training for three fire-suppression force assistant chiefs; and

(d) Video equipment for training purposes, including camera, video cassette recorder, monitor, and necessary training.

3. WATER SUPPLY

a. Setting

The East Bay Municipal Utility District (EBMUD) provides water to the City of Berkeley. The water source for the project site vicinity is the Aqueduct Pressure

Zone, which serves Berkeley areas located between the elevations of 100 and 200 feet. The project site is situated near the top of this pressure zone. Currently, there are 6-inch water mains on both Fulton Street and Durant Avenue that adequately serve existing daily and fire flow needs in the area (McGowan, 1985).

b. Impacts

(1) Daily Needs. The proposed project could be expected to generate a **daily** water demand of about 10 gallons per minute or 20,410 gallons per day (gpd), based on the assumption that the estimated 314 persons employed in the building would each use an average of 65 gallons daily.[1] This figure could vary widely, depending upon actual building usage, the types of air conditioning and other mechanical systems used, landscaping requirements, and the number of water fixtures. In any event, this domestic water demand range could be met by the existing 6-inch water mains in Fulton Street and Durant Avenue. The added needs of the project would not be expected to have a noticeable impact on the EBMUD system (Kolm, 1985).

(2) Fire Flow Needs. The estimated **fire flow** demand for the proposed project would be approximately 3,500 gallons per minute,[2] which would exceed the capacity of the existing water mains. The current capacity for fire flow at the project site is 2,130 gallons per minute with 20 pounds per square inch residual (Valmores, 1985).

c. Mitigation Measures

The following measures are recommended to mitigate the potential water supply and distribution impacts of the proposed project:

(1) Costs for the additional daily water supply required by the proposed project would be charged to the developer according to the size of the meter and volume required. There would also be a system capacity charge to cover the cost of transmission, as well as a meter installment fee (McGowan, 1985).

(2) The developer should consult with EBMUD and the Berkeley Fire Department to determine the precise fire flow demands. If the capacity is exceeded as indicated in this report, the developer would be responsible for the system improvements necessary to provide the required fire flow. The developer would be required to cover the cost of replacing the pipelines necessary to meet the fire flow requirement, although EBMUD offers a 30 percent credit for deferred replacement costs. This could entail replacing about 1,900 feet of pipe in Durant Avenue, Fulton Street, and Shattuck Avenue. It is estimated that the net cost to the developer would be about $70,000 (Valmores, 1985).

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[1]Normal water consumption based on average for commercial and industrial use in Fair, Geyer, and Okun, "Water and Wastewater Engineering, Vol. 1, Water Supply and Wastewater Removal," published by John Wiley & Sons, Inc., 1966.

[2]Fire flow calculation based on "Guide for Determination of Required Fire Flow" by Insurance Service Office, 1974.

(3) The developer should consult with EBMUD regarding their water conservation guidelines applicable to new construction office, retail, and commercial service uses. The proposed project should be designed to include inside water-saving appliances and devices as well as water-saving techniques for landscape irrigation (Kolm, 1985).

4. SEWAGE COLLECTION AND TREATMENT

a. Setting

The City of Berkeley owns and maintains a municipal wastewater collection system. At the project site, there is a 6-inch sewage collection line on Durant Avenue, which is connected to a 27-inch interceptor on Shattuck Avenue. It is estimated that the pipe is currently operating at about 70 percent of its design capacity (Bonwell, 1985).

Wastewater is conveyed from Berkeley for treatment to the East Bay Municipal Utility District (EBMUD) Wastewater Treatment Plant, located near the interchange of Highway 17 and I-80 on the Bay Bridge approach. The plant currently operates at about 70 million gallons daily during dry weather and has a capacity of about 120 million gallons daily (Ladensack, 1985).

A study of sewer system infiltration/inflow characteristics in the East Bay over the past five years is currently nearing completion. The study findings indicate that extensive stormwater volumes infiltrate into wastewater collection lines throughout the East Bay, including the project site, during wet weather. This wet weather infiltration/inflow can cause overloading of the wastewater treatment plant. The draft study shows, in general, that the local wastewater collection system is in disrepair and inadequate during wet weather. A long-range plan to upgrade the system has been prepared (Camp Desser McKee/Jordan/Montgomery Joint Venture, 1985).

b. Impacts. The proposed project would contribute an added wastewater flow to the local sewer system about equal to the estimated water demand, or approximately 14 gallons per minute. Again, this flow figure could vary widely depending upon actual project usage. This addition could bring flows in the existing 6-inch sewage collection line to near capacity. If actual project demands cause the capacity of this system to be exceeded, the developer would be responsible for installation of a larger capacity pipe (Lotter, 1985).

The additional wastewater flow due to the project would have no noticeable impact on the EBMUD treatment plant, since the added volume would amount to much less than one percent of the average daily dry weather flow.

c. Mitigation Measures

(1) The Department of Public Works requires a $10 permit fee and an engineering inspection fee for connection to the wastewater collection system. There is currently no connection fee, although the Department of Public Works is developing a

method for assessing such a charge for new hookups to the city's wastewater collection system (Lotter, 1985).

(2) If the additional wastewater flow generated by the proposed project causes the existing 6-inch line on Durant Avenue to exceed its design capacity, the developer should be responsible for the cost of upgrading the line as determined by the Department of Public Works.

(3) EBMUD charges new customers a one-time wastewater capacity fee, based on the capacity required to provide treatment to the estimated wastewater flow. Payment of this fee is required prior to connection to the EBMUD interceptor system. In addition, EBMUD requires an ongoing usage fee based on the wastewater flow. The wastewater flow is usually based on 100 percent of the volume measured on the water supply meter (Ladensack, 1985).

5. STORM DRAINAGE SYSTEM

a. Setting

Stormwater at the project site is collected in two catch basins located on the northwest and northeast corners of Fulton Street and Durant Avenue, and in a third catch basin in the center median on the north side of Fulton Street. Collected stormwater is then conveyed through a 10-inch stormdrain pipe beneath Durant Avenue to an interceptor on Shattuck Avenue. There are currently no known problems with the municipal storm drainage system serving the project area. (Lotter, 1985.)

b. Impacts

The existing storm drainage system is considered adequate to handle runoff from the proposed Courtney Building office. The volume of runoff from the project would not be substantially different from the existing runoff conditions, since the site is currently a paved parking lot. Runoff from the proposed building would be conveyed through roof drains, parking drains, catch basins, and other storm drain inlets to the local stormwater collection system (Lotter, 1985).

c. Mitigation Measures

(1) The Berkeley Department of Public Works requires a permit fee of $10 for connection to the storm drain system. In addition, the developer must pay for engineering inspection fees on an hourly basis at the time of connection, similar to fees charged for connection to the sewage collection system. There is no actual connection or capacity fee (Lotter, 1985).

6. SOLID WASTE COLLECTION

a. Setting

The City of Berkeley Refuse Collection Division operates a refuse collection service with 19 collection routes throughout the city. Seven of the routes handle commercial wastes. Collected refuse is hauled to the City Transfer Station, reloaded, and transported to the landfill in Richmond. The Refuse Collection Division is supported entirely by a fee system. The city handles a total of about 85,000 tons of solid waste per year. Less than 2 percent of that volume is recycled, although the city in 1984 adopted a 50 percent recycling goal.

b. Impacts

The proposed project could be expected to generate approximately 450 pounds of solid waste per day, or about 64 tons per year.[1] This amount would be substantially less than one percent of the annual tonnage handled by the city, and would not result in a significant marginal impact (Arnold, 1985).

c. Mitigation Measures

Solid waste collection fees would be billed regularly to the property owner based on the volume and frequency of collection. In addition, the developer should include the following measures in the proposed project to facilitate solid waste handling and to assist the city in meeting its recycling goals (Arnold, 1985):

(1) The building should be designed to provide convenient access for solid waste collection. The developer should consult with the city's Refuse Collection Division during the building design.

(2) The developer should consider including facilities for separating recyclable refuse, especially paper.

7. GAS AND ELECTRIC SUPPLY

a. Setting

The Pacific Gas and Electric Company (PG&E) provides gas and electricity to the City of Berkeley, including the project site. Currently, there is a 4 kV electric line along Durant Avenue in an overhead system, with additional capacity nearby on

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[1] This calculation is based on the assumption that: (a) there would be 220 building occupants, each generating 1.07 pounds of solid waste per day; (b) there are 260 working days in a year; (c) the anticipated ground-floor restaurant and retail uses could be expected to generate another 200 pounds of waste per day; and (d) there are about 310 commercial days per year. These figures are interpolated from the "Bay Area Waste Composition Study" by SCS Engineers for the California Solid Waste Management Board, 1979.

Bancroft Way. The existing gas and electric distribution systems are adequate for current needs (Miller, 1985).

b. Impacts

PG&E currently has adequate systems to accommodate both the gas and electrical power demands of the proposed project, assuming the energy needs are typical for an office/retail commercial building of this size (Miller, 1985). The existing overhead electrical systems would be undergrounded along the project frontage as part of the proposed action.

c. Mitigation Measures

(1) Connections. The developer would be required to pay for the costs of electrical work done by PG&E within the project property line to make connections to the existing gas and electric systems. There would be no charge for connection to the gas main (Miller, 1985).

(2) Ongoing Use. The property owner would be required to pay a regular fee based on the quantities of gas and electricity used.

(3) Undergrounding. Overhead electrical power lines along the project frontage on Durant Avenue would be removed and replaced with an underground power line as part of this project. The applicant would be responsible for associated street excavation and repair costs.

8. FISCAL IMPACTS--CITY COST-REVENUE EFFECTS

The purpose of this fiscal analysis is to evaluate the potential municipal cost and revenue effects of the proposed project. All figures are in constant 1985 dollars. The analysis includes municipal cost and revenue figures for the initial years of project operation, and offers conclusions with respect to the project's longer-term fiscal impact. The analysis concentrates on city General Fund revenues and expenditures, and excludes those project-related city service expenditures which are funded on a break-even basis by user fees, connection charges, permit fees, gas tax, special assessments, and so on, such as refuse collection, sewer and water services, landscape maintenance, street lighting, development review and building inspection, and most street maintenance costs. Charges, fees, assessments, and other funding sources for services are periodically adjusted to ensure that revenues match expenditures.

a. Ongoing City Costs

The added municipal expenditures anticipated with the proposed project are itemized in Table 22. The figures were calculated based on: (1) contacts with city financial staff, (2) review of the proposed City of Berkeley Budget for fiscal year 1985-1986, and (3) evaluation of the cost implications of the various project-related service needs described on the preceding pages of this chapter. The specific approach and assumptions applied in estimating added costs for the various line items in Table 22 are detailed in Appendix D and summarized below:

(1) Public Safety. Project-related public safety costs were estimated based upon the cumulative departmental needs described in this report for all eight new downtown buildings now under construction or approved (see Table 1).

The **Police Department** has estimated that the cumulative impact of these eight projects on the daytime population and activity level in the central district would result in the need for a minimum of one additional full-time sworn police officer (the Police Department now includes 117 full-time employees). The figure in Table 22 for project police costs represents the portion of this cumulative cost which can be apportioned to the project on the basis of building floor area. The cost figures are based upon figures from the city budget for the 1985-86 fiscal year. The cost includes the direct costs for a uniformed officer, plus related public safety costs covered by the General Fund, including the Training and Support budget, the Reserves budget, the Services budget, the Communications budget, and the Administrative Services budget, plus personnel benefits and miscellaneous expenses. These cost computations are detailed in Appendix D-1.

Similar to police service needs, the cumulative **fire protection and rescue** needs of the eight downtown projects could be expected to result in the need for one additional fire fighter, based upon Berkeley Fire Department staff comments and the current size of the BFD (115 full-time employees). The figure in Table 22 for project fire fighting and rescue costs, like the police figure, represents the portion of this cumulative cost which can be apportioned to the project on the basis of floor area. The cumulative cost includes the direct costs of the Fire Fighting and Rescue Division for one full-time uniformed employee, plus related public safety costs covered by the General Fund, including increases in the Training budget, Communications budget, and Administrative Services budget, plus personnel benefits and miscellaneous expenses. The cost computations are detailed in Appendix D-1.

The totals in Table 22 indicate that the proposed project would incur approximately $25,700 per year in added General Fund expenditures for public safety.

(2) Public Works. Project-related General Fund expenditures for public works services were computed in two ways. All costs associated with streets and traffic were calculated based upon estimates of added primary and secondary vehicular trips due to the project, in proportion to total vehicular trips generated by all existing city development. Costs of other public works services (administration, engineering, maintenance, capital improvements) were calculated on a per-capita (benefitting residents and employees) basis. These cost computations are detailed in Appendix D-2. Added costs for refuse collection and sanitary sewer are excluded since they would be offset by adjusted sewer charges to the landowner.

The totals in Table 22 indicate that the proposed project would incur approximately $10,400 per year in added General Fund expenditures for Public Works services.

(3) General Government. General governmental costs include all additional expenditures that can be anticipated by the city due to ongoing, project-related, administrative demands. These costs would include additional expenditures by the Auditor's Department, City Manager's Department, Legal Department, Management Services Agency, City Clerk, Mayor, Council, and Planning/Community Develop-

ment Department as a result of the project. Such cost increases were computed in proportion to the total cost increase for all other General Fund related city services listed in Table 22. These general government cost computations are detailed in Appendix D-3. (One-time administrative costs associated with the project application and development review process are discussed in a later section.)

(4) Total Municipal Costs. Table 22 indicates that total added costs per year due to the proposed action for all General Fund related municipal services would be around $69,816.

b. One-Time Revenues

The project would generate revenues from such one-time sources as building permit and plan check fees. Rough estimates of these one-time revenues are listed below:

Building Permit Fee (1.34 percent of total project cost)	$113,900
Plan Check Fee (65 percent of Building Permit Fee)	$ 74,035
Transportation Services Fee* ($2.00/GSF)*	$194,000

This analysis assumes that this income would be offset by general government costs associated with project development review (planning, building inspections, engineering review, public hearings, general administration, etc.), with no significant net benefit to the city.

c. Ongoing Revenue Generation Effects

Additional public revenues anticipated from the project are itemized in Table 23. Revenues are listed in the table by two categories: (1) those that are subject to discretionary allocation to various city services on an annual priority basis, and (2) those that accrue to special, nondiscretionary funds for specific capital improvement and operating purposes, such as the city's Offstreet Parking Fund, Street Light District, Parks and Landscaping District, and Library Fund.

The principal revenues to the city from development of the project site would consist of (1) property taxes, (2) sales taxes, (3) business license fees, (4) property transfer taxes, (5) fines and penalties, (6) utility users taxes, and (7) state subventions (state-shared revenues from the Cigarette Tax).

(1) Property Taxes. The property tax is set by law and is collected by the county at a rate of $1.158 per 100 dollars of assessed property value (1984-85 rate). The

* The city's Transportation Services Fee may be paid either as a lump sum, one-time payment as shown, or in annual payments, which would be approximately $19,400 per year for the Courtney Building (see Section IV.D.2.d.3).

Table 22
ESTIMATED IMPACTS ON ANNUAL CITY GENERAL FUND EXPENDITURES
1985 Dollars

Affected Expenditure	Total Citywide[a]	**Costs Due to Project**	
Public Safety			
Police	--	13,300	(see Appendix D-1)
Fire Fighting and Rescue	--	12,400	(see Appendix D-1)
Subtotal	22,221,017	25,700	
Public Works			
Street-related[b]	469,900	1,700	(see Appendix D-2)
Other	2,582,620	8,700	(see Appendix D-2)
Subtotal	3,052,520	10,400	
General Government	23,604,634	33,716	(see Appendix D-3)
TOTALS	$48,878,171	69,816	

SOURCE: Wagstaff and Brady, August 1985.

[a]From City of Berkeley Proposed Budget, 1985-1986, May 1985.

[b]Includes General Fund expenditures only (excludes expenditures covered by State Gas Taxes, etc., which would not burden General Fund).

Table 23
ESTIMATED IMPACTS ON ANNUAL CITY REVENUES
1985 Dollars

Operating Fund Sources	Without Project	With Project	Added Revenues Due to Project
Discretionary Sources (General Fund)			
Taxes			
Total Property Tax	11,795	129,707	**117,912**
Property Tax Share to Berkeley	5,072	55,774	**50,702**
Sales Tax			
Direct	2,388	20,545	**18,157**
Indirect	0	2,704	**2,704**
Utility Users Tax	0	4,365	**4,365**
Property Transfer Tax	0	16,320	**16,320**
Subtotals to Berkeley	7,460	99,708	**92,248**
Business License Fees	41	59,055	**59,014**
Fines and Penalties	0	1,250	**1,250**
State Subventions	0	722	**722**
Totals	7,501	160,735	**153,234**
Nondiscretionary Sources			
Offstreet Parking Fee	3,981	13,045	**9,064**
Benefit Assessment Districts*	-	7,808	**7,808**
Library Relief Tax	965	7,103	**6,138**
Totals	4,946	27,956	**23,010**
GRAND TOTALS	12,447	188,691	**176,244**

SOURCE: Wagstaff and Brady, August 1985.
* Streetlight and Parks/Landscaping Districts.

share of property tax revenues allocated to the city of Berkeley General Fund is currently set at 3.3 percent of the total countywide collection. In addition, the city receives 43 percent of the tax generated by new growth. These latter receipts would be the most significant component of city property tax receipts from the proposed project. For all land uses, the assessed property value includes land and improvements. For commercial land uses, the value of personal property is also included in the total (furniture, equipment, etc.). This analysis assumes that personal property represents approximately 20 percent of the real property total for the average Berkeley business in a new office or retail space.

Additional special-purpose taxes are also assessed by the city of Berkeley (streetlight district, parks and landscape district, etc.), but do not accrue to the General Fund.

The property tax estimates in Table 23 are presented in 1985 dollars. The figures are based on the county tax rate and city allocations that applied in the 1985-86 fiscal year. The table indicates that the proposed action would increase annual property tax revenues to the city from the site by approximately $50,700 in the first year of project operation, and that property taxes would account for about 33 percent of all added General Fund revenues generated by the project. (Over the long term, this percentage can be expected to decline due to the effects of Proposition 13. This effect is discussed at the conclusion of this section.)

(2) Sales Taxes. The city's General Fund also receives a subvention of one cent of the state 6.5 percent sales tax on all retail transactions in the city. The project would generate additional sales taxes in two ways: (1) from onsite sales activity, i.e., retail sales by tenants in the project itself; and (2) from offsite retail expenditures by project employees and businesses.

The "direct" sales tax figures in Table 23 assume that the project and its alternatives would generate taxable sales from retail and other sales activities at the following rates:

Office (assuming a portion of the tenants would be in sales): $10/sq.ft./year

Retail/commercial service (restaurant, etc.) = $100/sq.ft./year

The "indirect" sales tax figures in Table 23 assume that project employees would spend an average of 3 dollars per working day per person in the city, or $670 per year per employee; and that project business would spend an average of $200 per month per business in the city, or $2,400 per year per business.

(3) Utility Users Tax. Franchise taxes are collected by the city for its oversight of utility companies that operate under city license, such as PG&E, cable TV, the telephone system, etc. Utility franchise tax revenues have been approximated for the project based upon the gross assumption used in the Berkeley Waterfront Plan program that all uses (office, commercial, and residential) would generate utility users taxes at an average rate of roughly $45/1,000 square feet.*

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* McGuire & Company, "Berkeley Waterfront Plan, Evaluation of Alternatives," May 1985; p. V.F.21.

(4) Real Property Transfer Tax. The city receives a Real Property Transfer Tax of one percent of the selling price at the time of any transfer of real property in its jurisdiction. The tax is collected in one lump sum at the time of sale. For purposes of this annualized fiscal impact analysis, estimated transfer tax benefits have been spread on a yearly basis over the years between each anticipated selling point. The city has been experiencing an average turnover rate of 7 years (Kamlarz). On the basis of these average rates, Table 23 includes an annual real estate transfer tax revenue figure which is one-seventh (sale every 7 years) of one percent for the project.

(5) Business License Fees. The city charges a Business License Fee which varies with the type of business. The following assumptions were applied in calculating the Business License Fee total in Table 23:

Retail Rate: $1.03/$1,000 of gross receipts (1984-85 rate)
Gross receipts estimated at $100 per square foot per year

Office Rate: $3.10/$1,000 of gross business income (1984-85 rate)
Gross income estimated at $50,000 per employee per year

Rental Rate: $9.32/$1,000 of gross rental income
Gross rental income estimated at
Office: $2.25 per assignable square foot per year
Retail: $175 per assignable square foot per year*

(6) Fines and Penalties. The city expects to collect approximately $3,500,000 in fines and penalties in the 1985-86 fiscal year. Assuming that 80 percent of these forfeitures would be spread evenly over the total number of households and businesses in Berkeley (approximately 57,000), the Table 23 totals for additional project-related fines and penalties have been calculated at a rate of $50 per year per business.

(7) State Revenues. State revenues accruing to the General Fund which are affected by office development (i.e., added employees and residents) primarily include shared revenues from the Cigarette Tax. The shared cigarette taxes go to the city's discretionary General Fund. The city expects to receive approximately $360,400 in cigarette taxes from the state in 1985-86. On a per-capita basis, this total converts to approximately $2.30 per capita (residents and jobholders). This per capita rate has been used in calculating the Table 23 figures. Gas taxes are not considered in this cost-revenue analysis since they are allocated directly to city road, traffic control, and storm drainage funds.

(8) Offstreet Parking Fee. The city has enacted an offstreet parking fee to be collected annually at a rate of 10 percent of the gross rental charged for every parking space. Table 23 lists conservative estimates of the potential parking fee revenues that could be collected from the project and the alternatives, assuming that each stall would be used at a rate of $3 per day.

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* "Assignable" office square footage for the project equals 74,300; assignable retail equals 9,800.

(9) Benefit Assessment District Revenues. City voters have established citywide benefit assessment districts for the purpose of installing and maintaining street lights, and for maintaining city parks and common landscaping. Assessment estimates in Table 23 are based upon the current (1985-86) combined rates for these two districts ($0.0805/square foot for commercial uses).

(10) Library Relief Funds. The city's current library tax relief fee will remain in effect until June 30, 1990. Library figures in Table 23 are based on the assumption that the fee will be recertified in 1990 with no change in rate. The current library relief tax rate is $0.0465 per square foot of improvement for all building floor area including enclosed parking.

d. Cost-Revenue Comparison

Comparison of Table 22 and 23 totals indicates that discretionary (General Fund) revenues generated by the proposed office-commercial project in the first years of full operation (approximately $160,735 per year) would exceed added discretionary expenditures (approximately $69,816), resulting in an annual surplus from the project to the city General Fund of approximately **$90,919.** Over time, the annual surplus would be affected by Proposition 13 limitations on annual property tax rate increases (2 percent per year). Assuming no other changes in revenue collection characteristics, the revenue breakdown in Table 23 indicates that property tax revenues would account for roughly 35 percent of the annual revenue total to the city. Assuming that annual public safety, public works, and general government costs would escalate at a rate of 3 to 6 percent per year, and that revenue sources other than the property tax would be periodically adjusted to correspond with the rate of cost escalation, it appears that the property tax portion of total project revenue accruing to the city would decline to around 32 percent by 1990 and 27 percent by year 2000. Assuming no compensating adjustment in the rate of increase for other revenue sources listed in Table 23, the result would be a project surplus of between $102,300 and $108,600 by 1990, and $129,800 to $159,300 by the year 2000 (future dollars).

In summary, it is clear that, like most commercial land uses, the Courtney Building as proposed would generate annual General Fund revenues which would exceed expenditures **over the long term.** The project's cost-revenue effects should be considered in the context of the citywide fiscal picture. The City of Berkeley Economic Development Plan adopted by the City Council in 1980 explains that "although many projects will draw less in city services than they provide in tax revenues . . . , other projects clearly might not" (BEDP, p. 28). In the citywide context, office and commercial land uses such as the proposed project generate a cumulative fiscal surplus which offsets city deficits associated with various housing, recreational, cultural, and other essential land uses and activities.

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F. NOISE

I. EXISTING SETTING

a. General Noise Conditions

The project site is located on the edge of the Berkeley central business district where motor vehicle traffic is the primary source of environmental noise. Traffic on Fulton Street and Durant Avenue is the most significant existing noise source in the project vicinity. Higher noise levels events are usually generated here by bus, truck, and motorcycle traffic. Jet aircraft overflights also contribute to the noise environment. No significant industrial use, mechanical system, or other noise sources exist in the project vicinity.

b. Noise Perception and Measurement

Environmental noise is transmitted primarily by air. Airborne sound is defined as the detection by the human ear of rapid fluctuations in air pressure. Most sound measuring instrument readings and related noise level standards are expressed in terms of sound pressure levels or **decibels** (dB). The decibel measuring scale is logarithmic. Zero (0 dB) on the scale is the lowest sound level that a normal ear can detect under very quiet ("laboratory") conditions and is referred to as the "threshold" of human hearing. On the logarithmic scale, 10 decibels are 10 times more intense, 20 decibels are 100 times more intense, and 30 decibels are 1,000 times more intense than one decibel. To provide a comparative indication of what various levels on the decibel scale represent in terms of actual noise, typical measurements for various sources and distances are listed in Table 24.

Urban conditions are characterized by the constant noise fluctuations associated with human activity, including general traffic variations, occasional trucks and motorcycles, aircraft flyovers, construction activities, play, etc. In response to these random fluctuations, urban noise levels are typically measured in average terms which will account for their time-varying characteristics. Average noise measurements also are typically adjusted to give a higher weighting to nighttime sound levels in order to account for the greater sensitivity of people to noise during evening hours. This noise measurement approach is typically referred to as the average day-night sound level (Ldn). It is usually determined by calculating cumulative noise exposures occurring at a particular location over a 24-hour day, with a 10 dB weighting factor added to average levels occurring in the nighttime period between 10:00 PM and 7:00 AM.

c. Berkeley Noise Compatibility Standards and Guidelines

(1) Master Plan Noise Element. The Noise Element of the Berkeley Master Plan (1977) establishes city objectives regarding compatibility between various land uses and intruding noise levels. The Noise Element refers to criteria developed by the

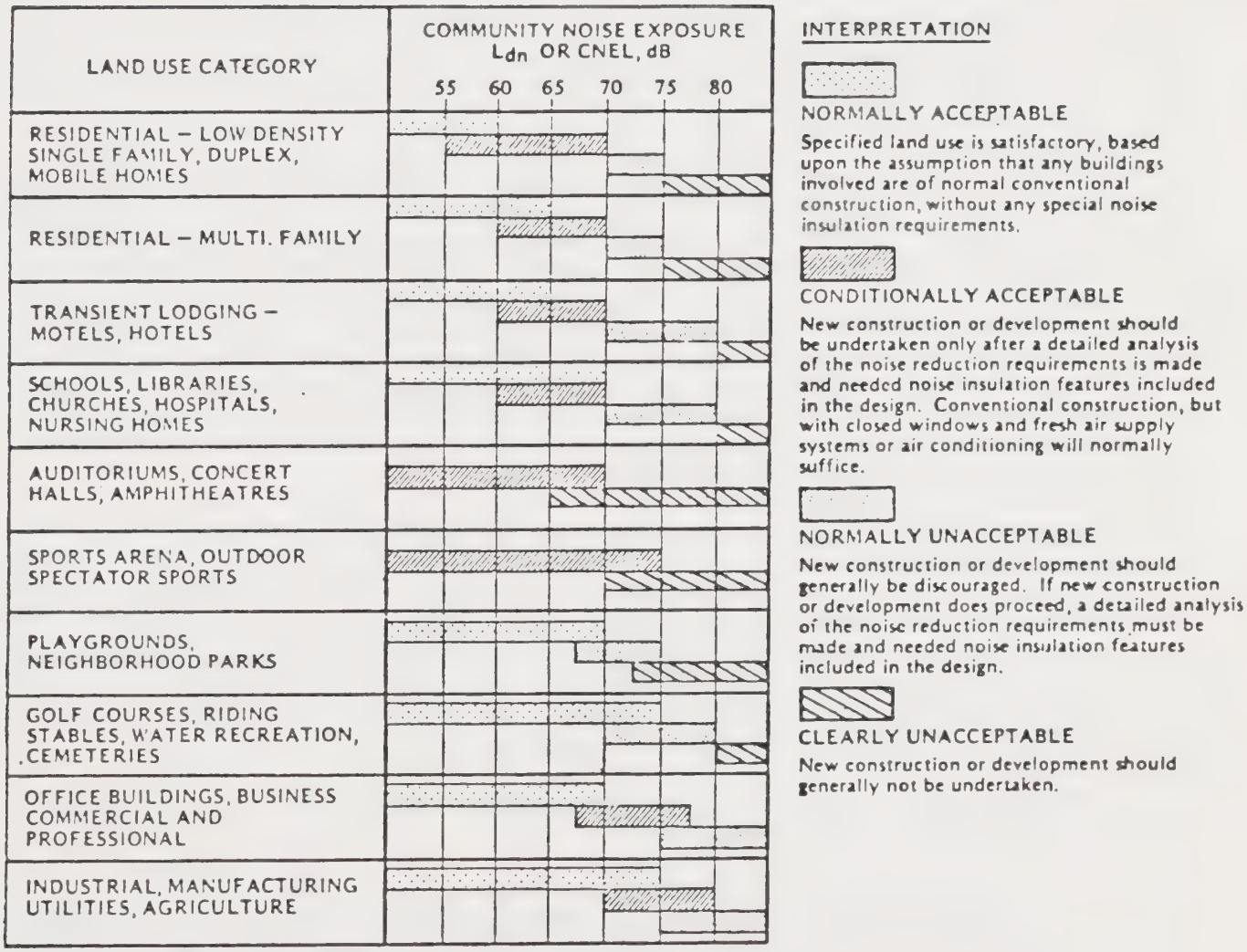
Table 24
NORMAL SOUND LEVELS ASSOCIATED WITH VARIOUS SOURCES AND PLACES

Source	Distance	Sound Level (dB)
Threshold of hearing	--	0
Mosquito	3 ft	10
Rustling leaves	--	20
Soft whisper	5 ft	30
Typical minimum nighttime levels, residential areas	--	40
Light traffic	100 ft	50
Average speech	3–5 ft	60
Small office (1–2 desks)	--	58
Medium office (3–10 desks)	--	63
Small store (1–5 clerks)	--	60
Large store (more than 5 clerks)	--	65
Miscellaneous business	--	63
Automobiles	50 ft	70
Garbage disposal in home	3 ft	80
Freight train	25 ft	100
Ambulance siren	100 ft	100
Automatic punch press	3 ft	110
Jackhammer	5 ft	120
Threshold of pain	--	130

State Office of Noise Control and established by state law (Title 25 of the California Administrative Code). These standards are reproduced in Table 25. The Noise Element also identifies those land uses which should be considered particularly noise sensitive. These include parks, schools, hospitals, rest homes, mental care facilities, and residential areas. According to the Noise Element, these sensitive uses should be considered to be adversely impacted by noise if they are exposed to average day-night levels (Ldn) of 65 dBA or greater. Commercial and industrial land uses are considered impacted if they experience an average noise environment of 75 dBA (Ldn) or greater.

(2) Berkeley Noise Ordinance. The city recognizes environmental noise as potentially harmful to human health and well being. To respond to this concern and implement policies set forth in the Noise Element, the city adopted a Community Noise Ordinance in 1982 (Ordinance No. 5500-N.S, Chapter 13.4). Certain amendments to this ordinance are currently under review. The ordinance establishes standards and limits for allowable noise levels during day and night hours, according to land use. For example, in commercial areas, exterior noise levels must not exceed 65 dBA for more than 5 minutes in one hour between 7 AM and 10 PM, or 60 dBA between 10 PM and 7 AM.

Table 25
LAND USE COMPATIBILITY WITH COMMUNITY NOISE ENVIRONMENTS



SOURCE: Noise Element of the City of Berkeley Master Plan (p. 174) and the State Office of Noise Control.

If the ambient noise level is greater than this standard, the ambient level becomes the standard, and cannot be increased. Table 26 summarizes city standards for different land uses.

c. Existing Noise Levels

Two sets of noise measurements have been recorded in the project vicinity: one by the EIR consultant in June 1985 for use in preparing this project-specific noise impact assessment, and one by the city in 1977 for use in preparation of the Noise Element of The Berkeley Master Plan.

(1) EIR Measurements. To quantify current noise levels, noise measurements were conducted at four locations in the planning area vicinity. The four noise locations (mapped on Figure 39) were selected along the major streets surrounding the project based upon their proximity to representative noise-sensitive land uses. The locations include: (1) Fulton Street between Channing Way and Haste Street (intensive residential frontages on both sides), (2) Durant Avenue between Fulton Street and Ellsworth Street (residential frontages along the south side); (3) Oxford Street between Allston Way and Center Street (second and third story residential frontages); and (4) Shattuck Avenue between Kittredge Street and Allston Way (typical central district commercial frontages). The major existing noise source at all of these locations is street traffic.

Measurements recorded at the four locations over a 6-hour weekday period (Monday, June 24, 1985) are presented in Table 27. The lowest noise levels were measured at location 1 along Fulton Street, the highest at location 4 along Shattuck. Levels which are described in the table as equalled or exceeded one percent of the time (L1) are commonly considered to be peak noise levels; those that are described as equalled or exceeded 99 percent of the time are considered to be the typical background or "ambient" levels. The "Leq" figures in Table 27 represent a computed average for the 6-hour measurement period.

Comparison of these direct noise measurements with the city's current noise standards indicates the following:

(a) Since all measured levels generally exceed city standards for the various land uses fronting on these local traffic routes, the effective noise standard for these frontages is the current ambient noise level. Increases of 5 dB or more over these average existing noise levels would be subject to city restrictions set by the ordinance.

(b) At measurement location 1 on Fulton Street, the computed average 6-hour noise level is 62 dBA (slightly exceeds the city exterior noise standard of 60 dB for the current R-4 zoning designation).

(c) At location 2 on Durant Avenue, the computed average 6-hour average noise level is 65–66 dBA (also exceeds the city standard of 60 dB for the current R-4 zoning designation).

Table 26
CITY OF BERKELEY NOISE STANDARDS (all units in dBA)

Land Use (Zone)	Maximum Acceptable Noise Level 7 AM–10 PM	10 PM–7 AM
Exterior		
R-1, R-2	55	45
R-3, and above	60	55
Commercial	65	60
Industrial	70	70
Interior		
All residential	45	40

	7 AM–7 PM	9 AM–8 PM (weekends, holidays)
Construction Period		
Less than 10 days:		
R-1, R-2	75	60
R-3, and above	80	70
Commercial/industrial	85	70
More than 10 days:		
R-1, R-2	60	50
R-3, and above	65	55
Commercial/industrial	70	60

SOURCE: City of Berkeley Noise Ordinance, 1982 as amended.

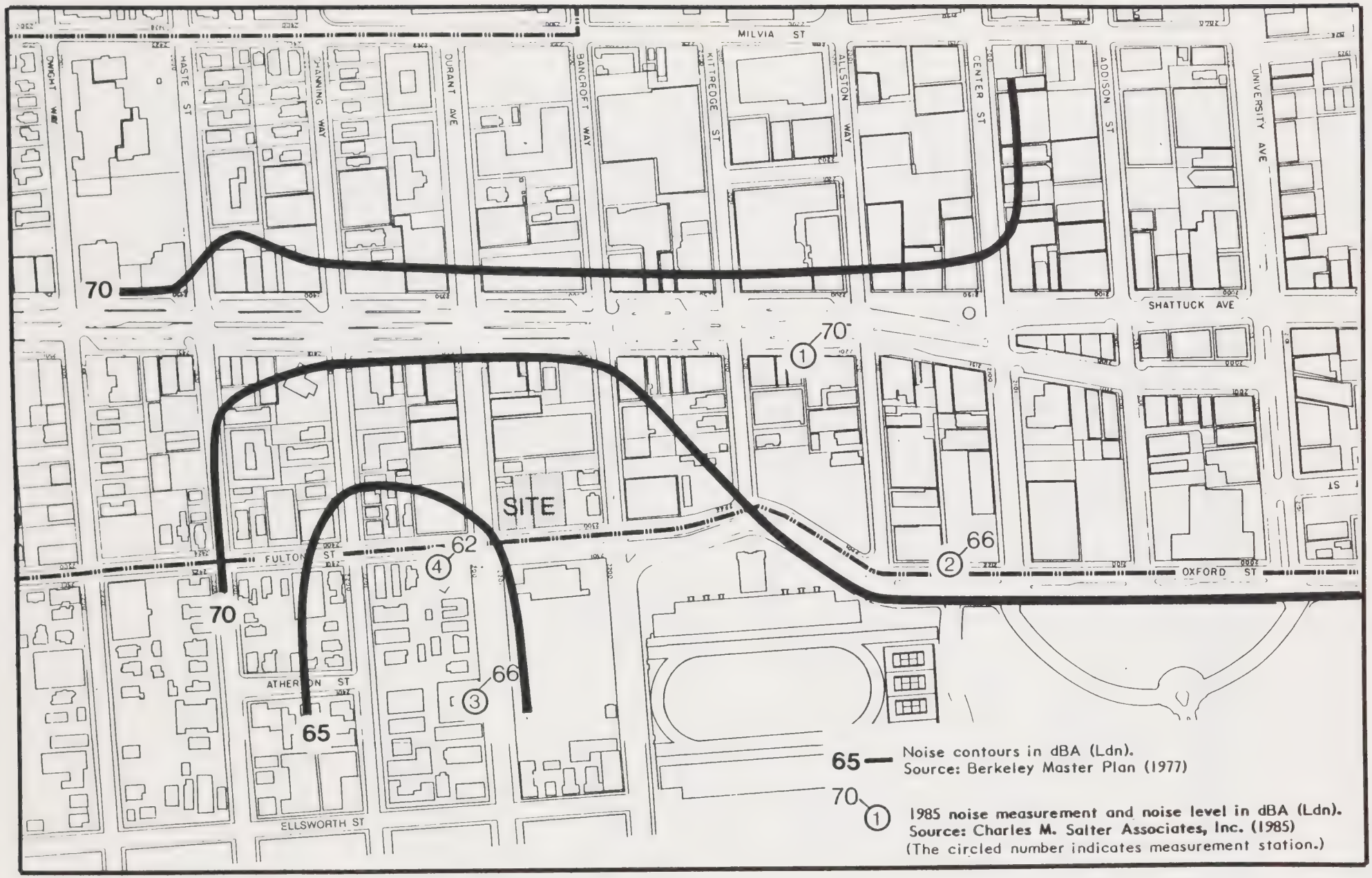


FIGURE 39
EXISTING NOISE CONDITIONS

Table 27
NOISE MEASUREMENTS--MONDAY, JUNE 24, 1985
See Figure 39 for Noise Measurement Locations.

Location	Time*	Leq	L1	L10	L50	L90	L99
(1) Fulton between Durant and Channing, 15 ft from curb	10:42 am	62	69	66	60	52	50
	2:20 pm	62	70	65	60	54	51
	4:45 pm	62	68	65	61	54	50
(2) Durant between Fulton and Ellsworth, 10 ft from curb	10:21 am	65	76	68	60	54	52
	2:00 pm	65	75	68	61	55	52
	4:25 pm	66	76	70	63	55	52
(3) Oxford between Center and Allston, 15 ft from curb	10:02 am	66	77	69	63	57	55
	1:42 pm	66	73	69	64	58	56
	4:04 pm	66	73	69	65	59	56
(4) East curb of Shattuck, 100 ft south of Allston	9:41 am	69	77	72	67	63	61
	1:16 pm	70	77	73	69	66	61
	3:42 pm	70	79	73	66	61	59

SOURCE: Charles M. Salter Associates, Inc.

Notes:

* Starting time for 15-minute measurements.

Leq is the equivalent steady-state sound level that, in a stated period of time, would contain the same acoustical energy as the time-varying sound level during the same time period.

L1 is the sound level in dBA that was equaled or exceeded one percent of the time; L10, L50, L90, and L99 are the levels equaled or exceeded 10, 50, 90, and 99 percent of the time, respectively.

(d) At location 3 on Oxford Street, the computed average noise level is 66 dBA (slightly exceeds the city standard of 65 dB for the current C-2 zoning designation).

(e) At location 4 on Shattuck Avenue, the computed average noise level is 69–70 dBA (substantially exceeds the city standard of 65 dB for the current C-2 zoning designation).

(2) Berkeley Master Plan Measurements. During preparation of the Berkeley Master Plan in 1977, a number of noise measurements were recorded by the city throughout the downtown area. The measurements are presented in the Master Plan in terms of average day-night levels (Ldn). Based upon 42 measurements made throughout the central area, estimated noise contours for the area were developed. These "existing" noise contours for the project vicinity are shown on Figure 39. These contours are generally consistent with the recent measurements recorded for this EIR; i.e., they indicate that the average exterior noise levels for the various residential and commercial frontages in the project vicinity already slightly exceed the corresponding noise guidelines listed in Tables 25 and 26, and, thus, the effective noise limit for these areas is the current ambient noise level.

2. IMPACTS

Potential noise impacts associated with the proposed Courtney Building can be divided into three categories: (a) potentials for long-term project-related noise impacts on nearby sensitive land uses, (b) potentials for short-term construction period noise and vibration impacts on the surrounding area, and (c) potential incompatibilities between the proposed project itself and the noise environment on Fulton Street and Durant Avenue.

People have been found to be sensitive to changes in noise levels according to the following categories:

- Except in carefully controlled laboratory experiments, an increase of 1 dBA or less cannot be perceived;
- Outside of a laboratory, a 3 dB increase is considered to be a barely noticeable difference;
- A change of at least 5 dB is required before any noticeable change in community response can be expected; and
- A 10 dB increase is subjectively heard as approximately a doubling in loudness and would almost certainly cause an adverse community response.

Land uses most sensitive to noise intrusion in the project vicinity include the commercial use (photographic studio) and 5-unit residential structure immediately west of the project site on Durant Avenue, a 6-unit residential structure immediately north of the site on Bancroft Way, plus intensive apartment frontages on both sides of Fulton Street in the four or five blocks south of the site, 3- and 4-story apart-

ment frontages on Durant Avenue east of Fulton Street, and upper-level residential apartments on Oxford Street north of the project site.

a. Long-Term Noise Impacts

The major noise source associated with the proposed use of the site would be motor vehicle traffic generated by project office and retail activities. Another potential noise source would be ventilation and other mechanical equipment associated with the office, retail, and parking garage uses.

(1) Impacts of Building Traffic Generation. Average daily traffic (ADT) volume increases anticipated from the project are listed in Table 28. As shown, ADT increases on local streets due to the project would be less than 4 percent for all routes except the Durant Avenue approach to the project site, where a 53 percent increase in traffic volume would be anticipated.

Table 28
TRAFFIC VOLUME CHANGES--1984 TO 1990 (WITH AND WITHOUT PROJECT)

Street	1984 (Existing)	1990--without Project		1990--with Project	
		ADT	% Increase	ADT	% Increase
Fulton Street (btwn Bancroft & Durant)	7,440	7,670	3.0	7,750	1.0
Durant Avenue	2,060	2,060	0	3,140	52.7
Oxford Street	11,640	11,940	2.6	12,390	3.7
Shattuck Avenue	14,250	16,750	17.5	17,030	1.7

Average daily traffic (ADT) volumes computed from PM peak-hour volumes in Figure 39, assuming that PM volumes = 18 percent of ADT.

Such an increase could be expected to raise average exterior noise levels along this street frontage by 1 or 2 dB (Ldn), a change which would be either barely perceptible or not perceptible at all. Projected 1984–1990 increases in noise levels in the sensitive residential corridors along Fulton Street south of the project site and along Durant Avenue east of the site are not expected to be detectable, with or without the project.

(2) Impacts of Building Operation. Normal activities associated with day-to-day operation of the Courtney Building would also contribute to noise levels in the project vicinity.

Building floor plans and architectural sections indicate that garage ventilation equipment could adversely impact neighboring uses during garage operating hours. As shown in Figure 40, a fan room located below grade on level 1 of the garage would ventilate the garage via an exhaust duct on the roof of level 2 at the northwest corner of the building, approximately 23.3 feet above grade.

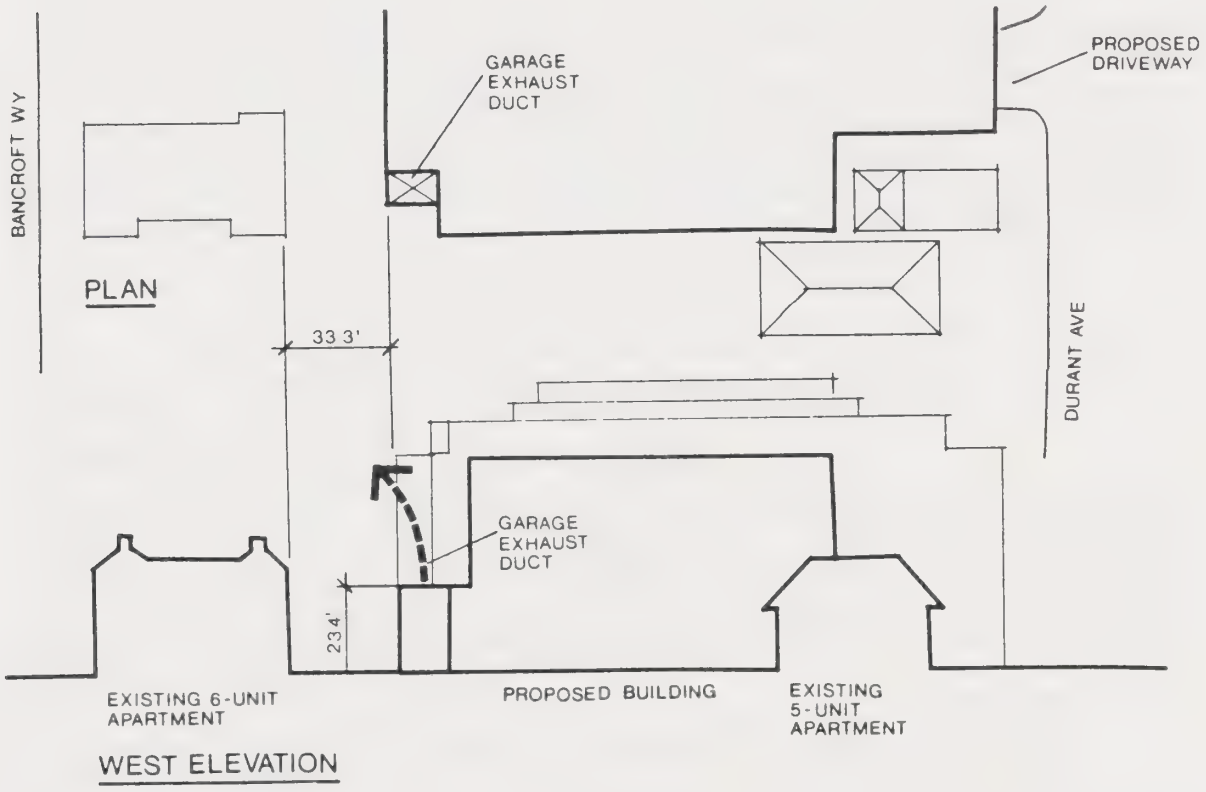


FIGURE 40
EXHAUST DUCT LOCATION

This exhaust point would be near the existing 8-unit apartment building at the rear of the Courtney Building site on Bancroft Way (approximately 33 feet from the nearest apartment units). Ventilation equipment noise emitted at this point could create a significant annoyance and nuisance for residents of the three apartment units directly exposed to the exhaust duct.

The garage access drive would be another source of noise impact. Noise from automobile and trucks entering and leaving the building via this driveway would be expected to generate intermittent noise levels of 70–88 dB at 50 feet (see Table 24). The neighboring photographic studio on Durant Avenue would be approximately 25 feet from these noise sources, and the apartment building on the next lot would be approximately 45 feet away. These exterior intermittent noise

levels would be clearly audible by the building occupants and could periodically interfere with quiet activities in the frontage spaces of these two structures.

Project air conditioning, elevator, and other mechanical equipment would be located in a seventh-story mechanical penthouse set well back from the building facades. A properly enclosed mechanical facility at this location would not be expected to create noise impacts on adjacent land uses.

b. Construction Noise

During the project construction period, increases in local noise levels would occur as a result of construction activities on the project site and construction traffic along the project approach routes. Although these noise impacts would be temporary, they could represent an annoyance and nuisance for nearby noise-sensitive land uses.

Typical noise-generating onsite construction activities would include excavation and foundation work, building erection, and facade work. These activities would involve noise-generating equipment such as bulldozers, air compressors, jackhammers, backhoes, concrete pumpers, cranes, and trucks. Noise levels associated with common construction equipment are listed on Table 29 (for a distance of 50 feet from the noise source). As shown in Table 29, the equipment types would generate intermittent noise levels as high as 80 to 88 dB at 50 feet. Typically, an exterior-to-interior reduction in sound levels of 20 dB can be anticipated for a conventional residential structure with its windows closed. Thus, inside noise levels of 60 to 60 dB could be expected in these adjacent structures during the project construction period. This interior noise level range could be expected to interfere with normal conversation, abilities to concentrate, and other quiet daytime activities in the 6 or 7 apartment units which face directly toward the site boundaries, and in the neighboring photographic studio. Such construction noise levels could also exceed construction period standards set in the city's Noise Ordinance. These construction period noise levels would not be expected to interfere significantly with other nearby land uses (Maggini Chevrolet, Shell Gas Station, Hibernia Bank, East Bay Water, Pacific Bell).

Note: Pile driving is usually the noisiest operation on a typical high-rise construction project, with a typical noise level of 105 dB at a distance of 50 feet, and associated vibration impacts. However, the architect for the Courtney Building does not anticipate use of pile drivers for this project (Hazard, 1985).

c. Compatibility of the Courtney Building with Projected Noise Levels

The City of Berkeley noise standards listed in Table 25 indicate that the daytime exterior noise environment for a commercial use should not exceed 65 dB. The recent noise measurements shown in Table 27 indicate that this noise level standard is already slightly exceeded along the project's Fulton Street frontage (by one decibel). Although the projected increase in traffic volumes along this route (Table 28) is not expected to result in a perceptible change in environmental noise levels with or without project-related traffic, these noise levels may warrant

Table 29
TYPICAL CONSTRUCTION EQUIPMENT SOUND LEVELS (in dBA)

Equipment	Sound Level at 50 Feet
Truck	80
Frond End Loader	85
Backhoe	85
Jackhammer	88
Saw	80
Piledriving	105
Concrete Truck/Pumper	85
Air Compressor	81
Scraper	88

SOURCE: Associated General Contractors of California, Construction Noise in California, 1976.

incorporation of noise insulation measures in the project design. According to the State Office of Noise Control, conventional midrise construction with sealed windows and fresh air supply systems or air conditioning would normally suffice.

3. MITIGATION MEASURES

a. Construction Period

(1) The developer would be expected to meet the requirements of the city's Community Noise Ordinance, including limiting construction activities to weekday hours between 7 AM and 7 PM.

(2) The developer would be expected to install a construction safety barrier around the periphery of the building site. Such safety fences are typically constucted using plywood panels. If properly designed, a plywood construction barrier can reduce line-of-sight noise levels by up to 15 dB. Thus, construction period noise level estimates in this report could be reduced at ground level by up to 15 dB if a properly designed plywood construction barrier is erected around the project site, shielding the surrounding sidewalk and neighboring ground floor areas from project ground-based noise generation (air compressors, crane engines, backhoes, bulldozers, etc.).

(3) As the site is excavated below ground level to accommodate the garage and building foundation, there would be a noise barrier effect provided by the side walls of the excavation, reducing noise intrusion into neighboring land uses from project construction equipment.

(4) To the extent possible, noise-producing construction equipment should be located nearest the southeastern corner of the site to minimize impacts on adjacent noise-sensitive land uses.

(5) All construction vehicles and equipment should be properly maintained and muffled to meet state noise standards.

(6) The applicant should designate an individual to respond to noise complaints during building construction and operation to ensure that adequate noise control measures are implemented.

(7) Occupants of buildings neighboring the site should be informed by the applicant about planned construction activities and schedules, and should be provided with the name and telephone number of the designated contact person who should be called in the event of a noise nuisance.

(8) Any noise complaints received by the applicant's contact person must be reported by the applicant to the City of Berkeley.

(9) In the event of a legitimate noise complaint, representative noise measurements shall be conducted by an independent qualified noise consultant retained by the applicant. If the recorded sound levels exceed city construction noise standards, construction activities must be modified to ensure compliance with the standards.

b. Project Operation

(1) To ensure that building mechanical equipment noise does not cause an adverse impact on neighboring land uses during daytime and nighttime hours, the applicant should be required to submit for city approval during the building permit process an **acoustical report** prepared by a qualified acoustical consultant, containing a detailed explanation of methods incorporated in project mechanical system plans that will reduce long-term noise emissions as measured at the nearest residential units on Durant Avenue and Bancroft Avenue to levels which comply with standards set in the Community Noise Ordinance. Report specifications should give special consideration to noise emissions from the proposed garage exhaust duct and the proposed rooftop mechanical penthouse.

c. Project Compatibility with Projected Noise Environment

(1) Conventional high-rise office building construction of the type proposed (Type II) with closed windows and fresh air supply systems or air conditioning, will suffice in abating identified noise impact potentials for Courtney Building frontages on Fulton Street.

(2) Noise impacts on adjacent land uses generated by motor vehicles entering and exiting the proposed project driveway on Durant Avenue could be reduced by relocating the driveway. However, a driveway location on Fulton Street would be undesirable due to traffic impact implications in that more heavily travelled divided route. Movement of the driveway to a location farther to the east on

Durant would have a slight noise reduction effect on the neighboring structures to the west, but would introduce a significant traffic impact (conflicts with left-turn movements onto Fulton Street). In summary, it appears that the traffic circulation advantages of the proposed driveway location outweigh the noise mitigation advantages of alternative driveway locations.

4. REFERENCES

City of Berkeley. Community Noise Ordinance, Ordinance No. 5500-N.S., Chapter 13; 1982 as amended.

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G. AIR QUALITY

1. SETTING

a. Climatic Factors

(1) Winds. The climate in the project area is dominated by marine winds influenced by San Francisco Bay to the west and the coastal hills to the east. Seasonal temperature variations are relatively small, with the mean temperature in the warmest months of the year (63 degrees) only 15 degrees higher than the coldest months (48 degrees).

The nearest permanent wind-measuring station is at Alameda Naval Air Station. The prevailing wind direction is westerly, with winds varying between southwest and northwest 56 percent of the time. Low wind conditions occur about 30 percent of the time, primarily in the fall and winter months.

(2) Inversions. The potential for air pollution is related directly to meteorologic conditions such as temperature inversions,[1] which limit vertical dispersion of pollutants. Low inversion heights limit volume of air exchange available to adequately dilute atmospheric pollutants.

During the summer months, low-level "subsidence inversions"[2] in the project area occur more frequently and are typically lowest in the afternoon hours. When moderate windspeeds are maintained, there is usually sufficient ventilation to provide dilution of pollutants. However, air quality deteriorates under "subsidence inversion" conditions, when wind speeds are less than about 5 miles per hour. In the winter months, "surface radiation cooling"[3] also produces inversions, which can result in reduced air quality.

b. Current Air Pollution Levels

(1) Current Standards. Federal and State of California ambient air quality standards have been established for the following five critical pollutants: sulfur dioxide, total suspended particulates, carbon monoxide, nitrogen dioxide, and ozone. The Bay Area Air Quality Management District (BAAQMD) maintains a network of community air monitoring stations for these pollutants and is responsible for

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[1] An "inversion" is an atmospheric condition in which temperature increases with altitude, unlike typical conditions in which temperature decreases with altitude.

[2] In a "subsidence inversion," the top layer of air is warmed more rapidly than the bottom layer, and consequently sinks to a lower altitude.

[3] The term "surface radiation cooling" refers to a surface-based radiation inversion where the layers of air close to the ground are cooled to a temperature lower than the overlying layers.

attaining and maintaining air quality standards. For environmental impact documentation purposes, the applicable standards have been defined by the BAAQMD as the more stringent of the federal and state standards, as shown in Table 30.

Table 30
APPLICABLE BAY AREA AIR QUALITY STANDARDS
Parts per Million, Except Where Noted

Pollutant	Averaging Time	Applicable Standard (not to be equaled or exceeded)	
Ozone	One-hour	0.10	(state)
Carbon Monoxide	One-hour	20	(state)
	Eight-hour	9[a]	(federal)
Nitrogen Dioxide	Annual average	0.05	(federal)
	One-hour	0.25	(state)
Sulfur Dioxide	Annual average	0.03	(federal)
	Twenty-four hour	0.05	(state)
	One-hour	0.50	(state)
Total Suspended Particulates	Twenty-four hour	150[b]	(federal)

SOURCE: BAAQMD

[a]Not to be exceeded more than once per year.
[b]Microgram per cubic meter.

(2) Current Readings. The nearest BAAQMD station is located in Oakland, several miles south of the site. Table 31 shows the maximum concentrations for two of the critical polluants--carbon monoxide and ozone--as recorded at the Oakland station from 1981 to 1984. The other three critical pollutants are not monitored at this particular station.

Table 31 shows that the state ozone standard was exceeded in Oakland in 1983 and 1984. Eight-hour carbon monoxide concentration levels have been rising since 1981, but have not exceeded the standards.

No violation of either the state or federal sulfur dioxide standards has been recorded in the Bay Area since 1961.

Table 31
MAXIMUM CARBON MONOXIDE AND OZONE CONCENTRATIONS MEASURED AT THE BAAQMD OAKLAND STATION, 1982–1984
(Parts per Million)

Pollutant	1981	1982	1983	1984	Ambient Standard
Carbon monoxide					
One-hour	12.0	10.0	11.0	Not Avail.	20[a]
Eight-hour	6.0	7.5	7.3	8.0	9[b]
Ozone[c]	0.09	0.07	0.12	0.11	0.10[a]

SOURCE: BAAQMD.
[a]State standard.
[b]Federal standard.
[c]One-hour.

Monitored levels of total suspended particulates at stations throughout the Bay Area have indicated a pattern of low levels that are well below the state and federal standards (40–50 micrograms per cubic meter, annual geometric mean). Concentration levels generally increase with distance inland, particularly in the dry sheltered valleys east of the Berkeley-Oakland hills (Orinda, Lafayette, Walnut Creek, Pleasant Hill, etc.).

The federal standard for nitrogen dioxide (0.05 ppm, annual average) has not been exceeded in the Bay Area. In recent years, the state's hourly standard (0.25 ppm) has been exceeded only one, in 1980 at the San Jose station.

(3) Regional Air Quality Plan. Because the federal standards for ozone, carbon monoxide, and total suspended particulates are not met everywhere in the Bay Area, the region has been designated a Non-Attainment Area for these pollutants. By federal law, this designation required the preparation of a Non-Attainment Plan (NAP) containing a strategy for eventual attainment of the federal standards.

The 1982 Bay Area Air Quality Plan includes stationary (industrial) source controls and mobile source controls to meet the federal standards throughout the Bay Area by 1987. These controls would apply to development of the project site.

Ozone is identified in the plan as the most serious air quality problem in the Bay Area. It results from a chemical reaction in the atmosphere between nitrogen dioxide and hydrocarbons in the presence of sunlight. Ozone occurs as a regional air quality problem primarily during the summer and early fall on warm, windless, sunny days. The 1982 Plan strategy for reducing ozone levels is to reduce hydrocarbon emissions from mobile and stationary sources throughout the region.

Carbon monoxide, on the other hand, is a non-reactive pollutant (i.e., it does not react chemically with other gases or pollutants), with one major source--motor vehicles. It is a localized air quality problem that occurs at congested intersections when average vehicle speeds are low. High carbon monoxide levels are typically experienced on stagnant (low wind speed) winter evenings with surface-based inversions. The 1982 Plan carbon monoxide control strategy is to reduce emissions from automobiles by such measures as a vehicle inspection and maintenance program and incentives to utilize alternative transportation modes.

Since atmospheric concentrations of carbon monoxide tend to be sensitive to local traffic and meteorology, carbon monoxide data from the nearest community air monitoring station may not be representative of the project site.

2. IMPACTS

a. Long-Term Traffic Impacts

The proposed project would have both regional and local long-term air quality impacts as a result of increased traffic.

(1) Regional Effects. Regional air quality would be affected by project-generated inceases in total vehicle miles travelled (VMT) and associated emissions of air contaminants. The proposed project would generate an increase of approximately 1,375 vehicle trips per day over projected base case 1995 conditions (DKS, 1985). Table 32 shows an estimate of regional air quality impacts due to the proposed project in terms of total emissions from these vehicle trips. Using formulas and air emission factors developed by the California Air Resources Board, the table compares emissions due to the proposed project with emissions for 1995 conditions without the project, and with 1995 regional motor vehicle emissions. The figures indicate that the additional project emissions would not be high enough to cause a measurable degradation of regional air quality.

(2) Local Effects. Although the project would not be a major stationary source of pollutants, the proposed location of garage ventilation system **exhaust duct**, as shown on Figure 41 is close enough in vertical and horizontal distance to the nearby 6-unit apartment building on Bancroft Way (33.3 feet) and the 5-unit apartment building* on Durant Avenue (67 feet) to create focused carbon monoxide, hydrocarbon, and odor emissions impacts on these two sensitive land uses. Similarly, the proposed **driveway location** could also result in focused carbon monoxide, hydrocarbon, and odor emissions from automobiles and trucks maneuvering in and out of the Courtney Building garage which could represent a nuisance and annoyance for the adjacent photo studio and apartment building on Durant. These driveway emissions levels would be similar to or less than those experienced along typical local streets and intersections (the apartment corridor along Fulton, etc.)

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* Four of the five units are currently unoccupied.

Table 32
TOTAL EMISSIONS ESTIMATES FOR MOTOR VEHICLE TRIPS GENERATED BY THE PROPOSED PROJECT IN 1995[a]
(Tons per Day)

Contaminant	1995 Emissions with the Project[b]	1995 Emissions without the Project[c]	1995 Regional Emmisions[d]
Carbon Monoxide	0.134	0.010	1,450
Hydrocarbons	0.012	0.001	142
Nitrogen Oxides	0.013	0.001	183
Sulfur Oxides	0.002	0.0002	28
Total Suspended Particulates	0.022	0.002	351

SOURCE: Baseline Environmental Consultants, July 1985.

[a]Estimates of emissions are based on the EMFAC6D factors, published by the California Air Resources Board (May 1985), assuming an average speed of 25 miles per hour for 1995. The factors are: carbon monoxide--14.22 gram/mile, hydrocarbons --1.28 gram/mile, nitrogen oxides--1.34 gram/mile, sulfur oxides--0.21 gram/mile, and particulates--2.31 gram/mile.

[b]Assumes 2,480 trips per day and a 6.2-mile average trip length (Source: DKS, 1985).

[c]Assumes 140 trips per day for the existing parking lot and a 6.2-mile average trip length (Source: DKS, 1985).

[d]Draft Air Quality Impact Assessment Guidelines for Projects and Plans, April 1985, by BAAQMD.

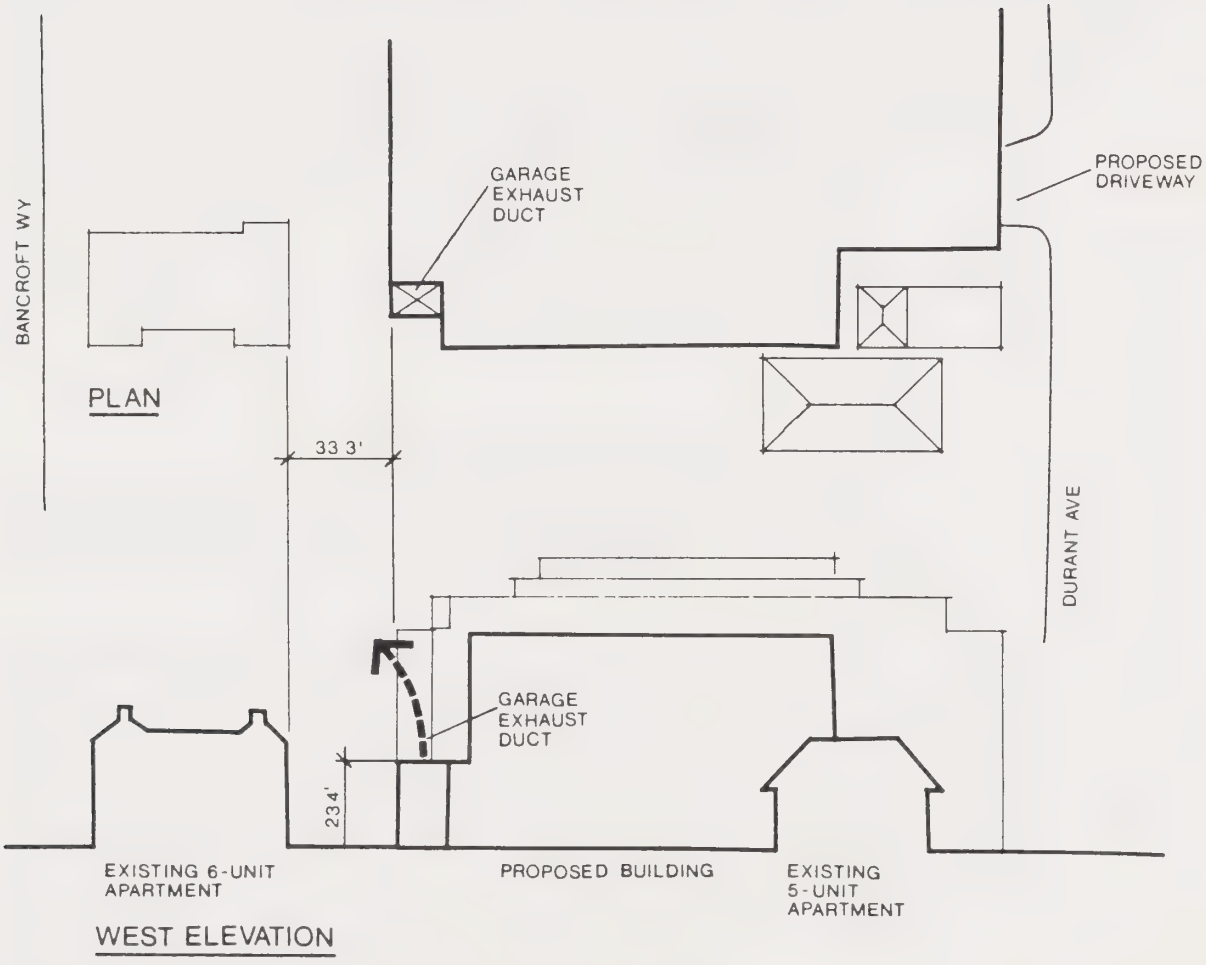

FIGURE 41
EXHAUST DUCT LOCATION

The proposed project would also result in localized increases in carbon monoxide levels due to associated increases in local traffic. Table 33 shows the local air quality impact at the four critical intersections in the project vicinity where increased traffic from the proposed project would contribute to significant congestion: (a) Shattuck/Bancroft; (b) Shattuck/Durant; (c) Fulton/Bancroft; and (d) Fulton/Durant (see Figure 42).

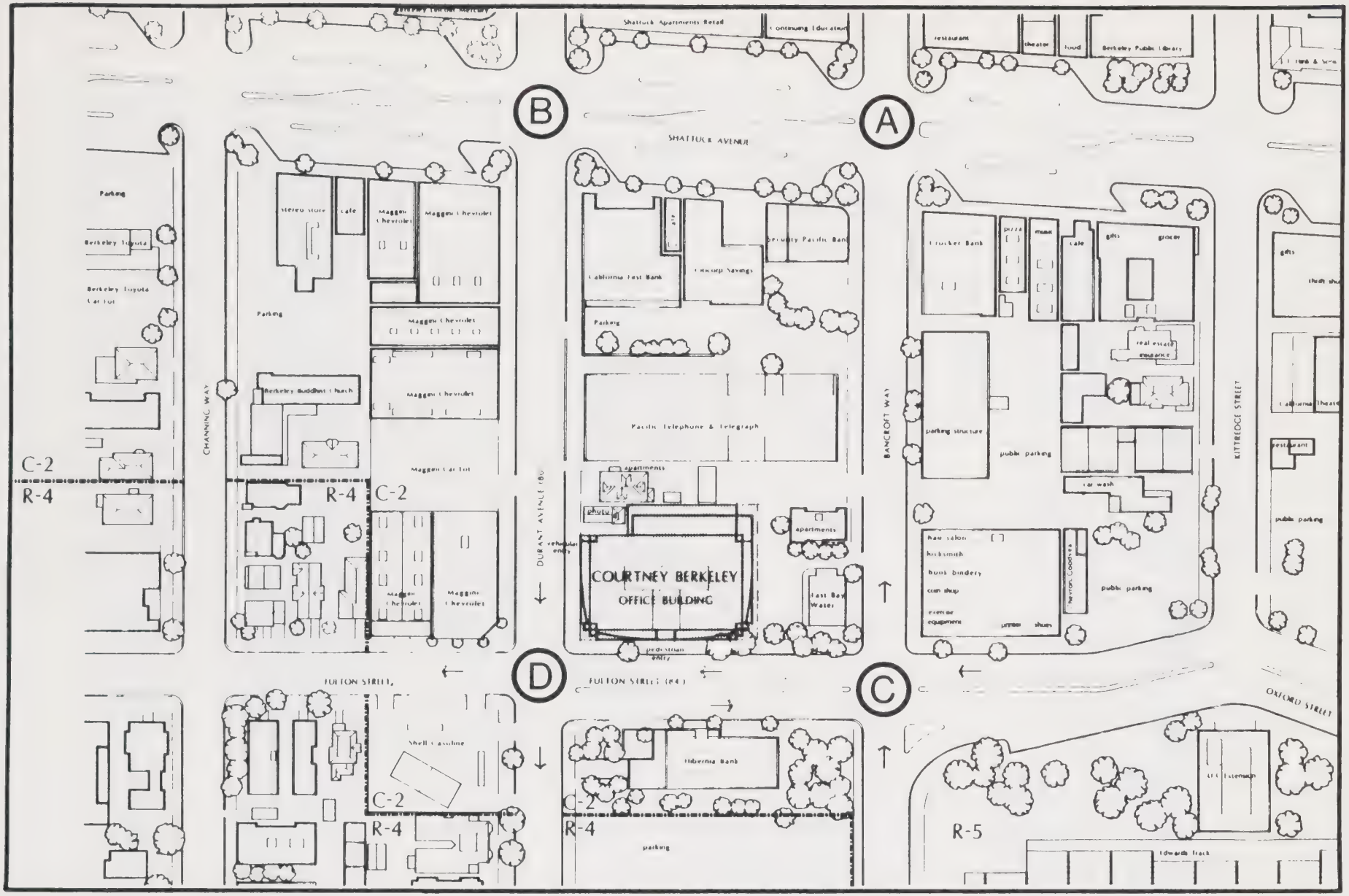

FIGURE 42

CRITICAL INTERSECTIONS FOR LOCAL AIR QUAITY IMPACTS

Table 33
PROJECTED CARBON MONOXIDE CONCENTRATIONS IN THE PROJECT VICINITY IN 1995 WITH AND WITHOUT THE PROPOSED PROJECT[a]
(Parts per Million)

Intersection (See Figure 42)	Peak One-Hour Concentration[b]	Eight-Hour Worst-Case Concentration[c]
Shattuck/Bancroft		
Without Project	8.9	7.0
With Project	8.9	7.0
Shattuck/Durant		
Without Project	10.3	8.0
With Project	10.4	8.0
Fulton/Bancroft		
Without Project	9.7	7.6
With Project	9.8	7.6
Fulton/Durant		
Without Project	8.7	6.8
With Project	8.8	6.9

SOURCE: Baseline Environmental Consultants, 1985.

[a]The 1995 baseline one-hour carbon monoxide concentration is assumed to be 5.7 ppm based on BAAQMD projections in the Berkeley area. Eight-hour concentrations are based on one-hour concentrations times a factor of 0.7 (BAAQMD, 1985).

[b]Ambient one-hour standard is 20 ppm.

[c]Ambient eight-hour standard is 9 ppm.

The local air quality impact figures listed in Table 33 were determined by estimating the concentrations of carbon monoxide at these intersections based on peak-hour traffic volumes from Section IV.D of this EIR. Calculation procedures for carbon monoxide analysis developed by the BAAQMD (1985) were used to estimate these future carbon monoxide levels. The BAAQMD procedure is designed to provide a reasonable estimate of carbon monoxide concentrations near roads under worst-case meteorological conditions. Estimates are shown for both peak one-hour and worst-case eight-hour concentrations.

The results of the carbon monoxide analysis indicate that carbon monoxide level in the project vicinity would be in compliance with standards with or without implementation of the proposed project.

b. Short-Term Construction Period Impacts

Construction activities on the site would generate localized increases in air pollutant emissions in the vicinity of the project. Trucks and construction equipment would release exhausts and associated hydrocarbon and odor emissions which would be a significant annoyance and nuisance for neighboring residents and businesses. Earthmoving, grading, and excavation activities in the early phases of project construction would generate wind-blown dusts. In later construction phases, fire insulation of the building's steel frame could generate dust and suspended particulates.

3. MITIGATION MEASURES

a. Long-Term Impacts of Building Operation

(1) Building Sources. The applicant should be required to submit for city approval during the building permit process a **ventilation report** prepared by a qualified air-conditioning engineer, containing a detailed explanation of methods incorporated in the mechanical system to ensure that adverse air quality impacts on the three neighboring structures (photo studio and two apartment buildings) are adequately mitigated. The report should give special consideration to potential hydrocarbon and odor emissions from the proposed garage exhaust duct and garage entrance.

(2) Traffic Sources. The 1982 Bay Area Air Quality Plan was developed to attain the federal ozone and carbon monoxide standards in the Bay Area by 1987. The plan identifies strategies for reducing ozone levels (based on the reduction of hydrocarbon emissions) and for reducing carbon monoxide levels (ABAG, 1982). In the Bay Area, 40 percent of the hydrocarbons and most carbon monoxide emissions come from cars and trucks.

Therefore, the developer should be encouraged to promote **Transportation System Management (TSM)** measures listed in Section IV.D.3 of this EIR to reduce the number of automobiles driven to work. A TSM program typically consists of measures to encourage use of carpools, vanpools, transit, walking, and bicycing as well as measures to spread peak travel demand over a longer period of time to lessen roadway congestion.

The developer and the project Transportation Coordinator should take advantage of the **Berkeley Transit–Ridesharing–Parking (TRiP)** program. This local program, jointly sponsored by the University of California, City of Berkeley, and Chamber of Commerce, provides a clearinghouse for alternatives to driving alone and offers carpool matching, transit passes (through a brokerage concept), and bicycle information.

b. Construction Period Measures

(1) Execute an effective sprinkling program. Watering is the normal method of dust and suspended particulate control on construction sites. An effective watering program (complete coverage twice daily) would reduce emissions by about

50 percent. Thus, unpaved construction areas should be sprinkled with water to control dust.

(2) Schedule major dust-generating activities for the early morning or other hours when local winds are low.

(3) Cover storage piles (dirt, construction refuse, etc.) adequately with plastic sheeting to prevent wind and water erosion.

(4) Use canvas drapes to close building floors when applying mineral-base fire insulation to the building's steel frame.

(5) Minimize particulate emissions from motorized construction equipment through proper maintenance and operation.

(6) Minimize hydrocarbon emissions. The project should comply with Regulation 8, Rules 3 and 15, of the BAAQMD which specify types of paint and asphalt which can be used.

4. REFERENCES

a. Reference Documents

Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District and Metropolitan Transportation Commission. 1982 Bay Area Air Quality Plan. December 1982.

Bay Area Air Quality Management District (BAAQMD). Air Quality Impact Assessment Guidelines for Projects and Plans. Draft Copy; April 1985.

California Air Resources Board. Composite Emission Factors by Pollutant and Speed, EMFAC6D; May 1985.

DKS Associates. Memorandum from James Dougans to Baseline Environmental Consulting; July 10, 1985.

b. Persons Contacted

Murray, Gail. Project Manager for Berkeley TRIP, personal communication; July 15, 1985.

Roggenkamp, Jean E., Planner, Bay Area Air Quality Management District. Personal communication; June 25, 1985.

V. ALTERNATIVES TO THE PROPOSED ACTION

The 97,000-square-foot office-commercial Courtney Building has been considered in this EIR as the principal proposal for development of the subject site, and has thus been subject to detailed impact analysis. This section provides a comparative assessment of a number of land use variations on the proposed action. The purpose of this comparison is to provide a further understanding of the impacts of the project, approaches to reducing these impacts, and possible alternative approaches to development of the site.

Based upon a community Scoping Meeting and discussions with city staff, four alternatives have been identified for comparison to the proposed action. They include: (1) a reduced intensity office-commercial alternative, (2) an increased intensity office-commercial alternative, (3) a mixed-use commercial-residential alternative, and (4) no project.

The section begins with a description of the principal development characteristics of each of the four alternatives, followed by a comparative evaluation of the effects of each on the seven impact categories comprising the focus of this EIR.

A. REDUCED INTENSITY ALTERNATIVE

Under this scenario, the project site would be developed in a manner similar to the proposed office-commercial concept, but with a reduction in building height from six to five stories, and an associated reduction in floor area ratio. The ground floor retail-service commercial component would remain the same; levels two through five would be office (rather than two through six); and the site coverage and architectural style would remain unchanged. Basic project data would be as follows:

Land Use:	Ground floor--retail and commercial services Upper levels two through five--office
Floor Area:	83,650 gross square feet
Floor Area Ratio:	4.0
Height:	5 stories (64'-6")

Floor	Gross Sq.Ft.	Use
Ground Level	12,050	Retail/Commercial Service
Level 2	18,650	Office
Level 3	17,650	Office
Level 4	17,650	Office
Level 5	17,650	Office
TOTAL	83,650	

Parking		Spaces
Ground Level	6,050	0
P-1	19,900	62
P-2	19,900	76
P-3	7,855	30
TOTAL		168

B. MAXIMUM INTENSITY ALTERNATIVE

The height and floor area ratio of the proposed project (77'-6" high, 6 stories, 4.67 FAR) are under the maximums allowed in the C-2 District (100'-0" high, 6.0 FAR). Under this "maximum intensity" alternative to the proposed action, the site would be developed with an office-commercial building similar to the proposed project, but with an increase in development intensity to the **maximum building envelope** (height and setbacks) and floor area ratio allowable under the city's current C-2 zoning district provisions. Basic project data would be as follows:

Land Use: Ground floor--retail and commercial services
Upper levels two through eight--office

Floor Area: 124,500 gross square feet

Floor Area Ratio: 6.0

Height: 8 stories (100'-0")

Floor	Gross Sq.Ft.	Use
Ground Level	12,050	Retail/Commercial Service
Level 2	16,650	Office
Level 3	16,650	Office
Level 4	16,650	Office
Level 5	16,650	Office
Level 6	16,650	Office
Level 7	16,650	Office
Level 8	13,450	Office
TOTAL	124,500	

Parking		Spaces
Ground Level	4,250	0
P-2	21,220	67
P-3	22,220	91
P-4	22,220	91
TOTAL		249

C. MULTI-USE ALTERNATIVE (RESIDENTIAL-COMMERCIAL)

Under the multi-use concept, the site would be developed with some viable mix of residential, office, and commercial uses in a single structure in order to fully respond to central area needs for expansion in each of these three areas. In particular, the multi-use alternative has been suggested in response to city goals to expand its housing stock and to improve downtown housing opportunities by encouraging high density housing and mixed-use development.

1. Considerations in Selecting a Viable Multi-Use Combination for Testing

In order to describe a multi-use alternative which combines the most reasonable combination of retail, office, and residential uses, mixed-use experiences in the Bay Region and nation as a whole were researched (references are listed at the end of this chapter). From this research, the following principles were identified as particularly relevant to consideration of mixed use for the project site.

a. There appears to be a "**critical mass**" associated with modern multi-use buildings. The gross building area of multi-use structures incorporating all three uses --residential, office, and commercial space--is usually greater than 500,000 square feet, and the gross land area is typically greater than 5 acres. Multi-use projects (residential-office-commercial) of smaller scale (under 500,000 square feet) lack economic viability for the following reasons:

(1) Building space is too limited to permit necessary horizontal and vertical separations between diverse uses. Given the limited R-5 or C-2 building envelope, necessary separation and isolation between the uses cannot be sufficiently achieved such that commercial and office users are not inconvenienced by the residential users, and residents are not inconvenienced by office users and commercial patrons. Also, the size of the residential component cannot be large enough to give residential spaces a feeling of territoriality and minimal isolation (defensible, private space).

(2) The project scale is not large enough to physically and economically support the amenities and infrastructure that must be provided to make the project successful. Similarly, the building scale is not large enough to create the requisite public image and distinctive market identity necessary to make the project successful.

(3) The limited size of the residential component in the building mix allows little feeling of community within the project.

(4) With substantial office and residential uses above ground level, access provisions (entry lobbies, elevators, stairways, elevator lobbies, etc.) and other facilities would have to be separated. Otherwise the personal space of residents may be interfered with by the other users, and vice versa. In a building under 500,000 square feet in size, the cost per square foot of such separate facilities, and the corresponding loss in leasable or saleable area is usually prohibitive.

b. Due to the complexity of diverse multi-use projects (retail, office, and residential), there is a significant difference in degree of development difficulty (financing, architectural design, engineering, marketing, long-term management).

c. Individual development organizations are usually experienced and interested in only one type of real estate project; for example, residential only or commercial only; local developers experienced with multi-use are unusual. Diverse multi-use projects usually require diverse design and managerial talent, and are therefore usually undertaken by master development corporations rather than smaller, specialized development groups.

d. A strong market for highrise residential space in Berkeley has not been clearly demonstrated; the complexity of introducing commercial and office uses into a compact, highrise residential structure would further limit popular acceptance in this market.

e. If residential and office are combined in substantial amounts above ground level in an R-5 or C-2 building envelope, limits on the size of the residential component in combination with the high cost of highrise residential infrastructure would prohibit affordable housing prices.

f. Nearly all smaller-scale single-structure multi-use projects have commercial (retail, commercial, or office) on the ground floor, and office or residential on the second and upper floors.

g. The demand for second-floor-accessed retail space is nearly non-existent except in the most intense of core areas.

2. Conclusions: Selection of a Multi-Use Combination for Testing

Given these considerations and the constraints on building scale reflected in the site size (less than one-half acre) and the C-2 and R-5 zones, it appears that the viability of a multi-use scheme incorporating a combination of substantial residential and office uses above the ground floor would be too remote and speculative for consideration as a reasonable project alternative. The remaining multi-use alternatives which do appear to warrant further comparative analysis are projects incorporating ground-floor commercial space with levels 2 and above either all office as proposed, or all residential. Perhaps a viable variation on this approach would be ground-floor and mezzanine commercial (i.e., all commercial space still

accessible from the ground floor without elevators), with all upper (elevator) levels either office or residential exclusively.

Based on these conclusions, a residential-oriented dual use alternative to the proposed action is described below with commercial space on the ground floor (retail, commercial services, and offices), and residential space on levels 2 and above. For comparison purposes, the alternative has been described as similar in scale to the proposed project. The size of the residential component has been governed by current zoning regulations for the city's most intensive, central area residential zone--R-5 (coverage 45 percent; height: six stories). The size of the commercial component is the same as proposed in the current Courtney Building design. Basic project data would be as follows:

Land Use: Ground floor--retail, commercial services, and office
Upper levels 2 through 6--residential

Floor Area: 58,735 gross square feet

Floor Area Ratio: 2.8

Height: 6 stories (77'-6")

Floor	Gross Sq.Ft.	Use
Ground Level	12,050	Retail/Commercial Service
Level 2	9,337*	Residential (10 units)**
Level 3	9,337	Residential (10 units)
Level 4	9,337	Residential (10 units)
Level 5	9,337	Residential (10 units)
Level 6	9,337	Residential (10 units)
TOTALS	58,735	50 units
		30 2-bdrm
		20 1-bdrm

* Horizontal profile, residential (R-5 requirement) = 45% = 9,337 s.f.
** Each residential level includes four one-bedroom units (750 square feet each, including 710 square feet enclosed, plus 50 square feet of balcony), and six two-bedroom units (910 square feet each, including 850 square feet enclosed, plus 60 square feet of balcony).

Parking	Gross Sq.Ft.	Spaces
Ground Level	6,050	0
P-1	20,000	62
Parking Requirement:		
Retail/Commercial		24
Residential (R-5) = 1 space/1,200 s.f. =		38
Total		62

D. NO-PROJECT ALTERNATIVE

Under the "no-project" scenario, the 0.48-acre site would remain in its present use, with intensification deferred to some future time. Thus, the project site would continue to be used as a privately operated 76-stall public parking lot.

E. EVALUATION OF COMPARATIVE IMPACTS

1. Differences in Land Use Impacts

a. Impacts on Adjacent Uses. The three office-oriented alternatives and the residential-commercial scheme would all have impacts on the adjacent photo studio and neighboring apartment buildings similar to the proposed action, assuming the same building footprint for the ground-floor retail.

b. Zoning Consistency. All schemes would be consistent with the provisions of the C-2 zone.

c. Effects on Local Land Use Pattern. All four schemes would also have similar impacts on the overall land use pattern in the project vicinity by increasing the development intensity of the project block to an aggregate floor area ratio more consistent with downtown blocks north and west of the project. The three office-oriented schemes would directly reinforce the downtown role as the city's dominant commercial center. The residential-oriented use would also be mutually supportive of evolving downtown goals for a viable downtown. The residential component on this downtown "anchor" corner would complement the function of the core, while also providing a compatible land use transition into the residential areas to the south and east (see Figure 16). The residential alternative would also be consistent with goals to encourage high-density residential use in the downtown.

d. Impacts on Downtown Land Use Trends. The three office-oriented projects would reinforce recent trends in the downtown toward office as the predominant land use. The residential-oriented alternative would tend to offset that trend.

e. "Spillover" Effects. All four development alternatives would have similar "spill-over" effects in creating pressures to intensify surrounding "underutilized" lands.

2. Differences in Market Impacts

a. Reduced Intensity Alternative. A smaller office-commercial project would be subject to the same market advantages and disadvantages identified in Section IV.B for the proposed action, with the following exceptions:

(1) The reduced height of the structure (one less story) would reduce the prominence and "identity" of the structure; and

(2) The reduction in office floor area from 89,250 to 71,600 square feet would reduce abilities to accommodate the "large tenant."

b. Maximum Intensity Alternative. Again, the market advantages and disadvantages of this enlarged office-commercial scheme would be similar to the proposed action, with the following exceptions:

(1) The increased height of the structure (two additional stories) would increase its prominence and identity;

(2) The increase in office floor area from 89,250 to 112,450 gross square feet would increase abilities to attract "large tenants."

c. Multi-Use Alternative. The midrise residential-commercial alternative would have the following marketing implications in comparison with the proposed action:

The market feasibility of such a high-density residential project with ground-floor commercial at this location is uncertain since:

- Residential units are, in general, more difficult than office to lease or sell;
- No comparable housing of this type (midrise residential above ground-floor commercial) has yet been successfully marketed in Berkeley; and
- The required selling price of the units would be comparatively high relative to other housing-for-purchase choices in Berkeley.

Also, the unusual nature of project ownership could complicate management and legal aspects of the project, adding to marketing difficulties.

On the other hand, a midrise condominium project recently proposed for a nearby site on Oxford at Hearst demonstrates a new private sector interest in high-density housing for purchase in the area between the university and the downtown. Also, the critical shortage and high cost of student housing in proximity to the university may encourage purchase of such condominium units by families as an investment-oriented approach to providing housing for their children while attending the university.

d. No Project. Denial of the office-commercial development request would tend to strengthen the market for new office space now under construction or recently approved at other downtown locations.

3. Differences in Employment, Housing, and Economic Impacts

a. Employment Impacts. Differences in the employment characteristics of the four project alternatives are summarized in Table 34. These primary employment impacts (onsite jobs) would also generate secondary employment growth effects (multiplier effects). Using the same secondary employment generation assumptions applied in estimating the effects of the proposed project (see Section IV.C.1.b.3), the total employment potentials of the four alternatives would be:

	New Jobs in Berkeley
Proposed Project	500 to 600
Reduced Intensity	400 to 500
Maximum Intensity	600 to 700
Residential-Commercial	30 to 35

b. Housing Impacts. Based on the new job totals above, the maximum intensity office alternative would, obviously, have the greatest adverse impact on local housing demands, associated upward pressures on housing prices, and rental shortages. All three office schemes would result in the direct loss of a possible residential construction site.

The multi-use residential-commercial alternative has been included in this analysis in response to city goals regarding expansion of its housing stock, providing high-density housing near the downtown, and encouraging mixed use in the downtown as a means towards these ends. As explained in the description of the project alternatives, a residential midrise project with ground-floor commercial, assuming the same building height as the proposed project (six stories) and governed by city R-5 zoning regulations, could yield 50 one- and two-bedroom residential units. This total could be increased by manipulating building height and coverage limitations. Table 35 summarizes unit yield and cost differences associated with six different scenarios. All are variations upon an actual high-density residential proposal for a nearby site at Oxford and Hearst (Oxford House). **The six scenarios include:**

High Density Comparable:	Applicable Zoning Limitations
Oxford House. A six-story, all-residential project (no commercial) at Hearst and Oxford	Residential floor area governed by R-4 coverage limitations (same as R-5 at 45 percent) Height governed by R-4 height limitations (six stories)
Multi-Use Scenarios:	
1 A six-story all-residential project (no commercial) on an R-5 site similar in size to the Courtney site	Same R-5 limitations as above
2 A six-story all-residential project (no commercial) on the C-2-zoned Courtney site	Same R-5 limitations as above
3 A nine-story all-residential project (no commercial) on the C-2-zoned Courtney site	Same R-5 limitations as above, but with C-2 height limitations
4 The **selected multi-use alternative,** i.e., a six-story multi-use residential/commercial project on the C-2-zoned Courtney site	Commercial floor area governed by C-2 setback limitations Residential floor area governed by R-5 coverage limitations (45 percent) Building height governed by R-5 limitations (six stories)
5 A nine-story multi-use residential/commercial project on the C-2-zoned Courtney site	Same commercial and residential floor area limitations as above, but with building height governed by C-2 limitations (100 ft)
6 A nine-story multi-use residential/commercial project on the C-2-zoned Courtney site with a coverage bonus to increase residential yield and affordability	Residential coverage increased from 45 percent (max. allowable in an R-5 zone) to 55 percent

Table 34
EMPLOYMENT ESTIMATES--PRIMARY (ONSITE) JOBS

	Proposed Project	Reduced Intensity	Maximum Intensity	Residential-Commercial
Office space (sq.ft.)	84,950	71,600	112,450	--
Number of Employees	283	239	375	--
Professional/Technical	96	82	128	--
Managerial/Admin.	57	48	75	--
Clerical	105	88	139	--
Sales	8	7	11	--
Service	3	2	4	--
Crafts, etc.	14	12	19	--
Retail/Commercial service (sq.ft.)	12,050	12,050	12,050	12,050
Number of Employees	27	27	27	27
Professional/Manag.	3	3	3	3
Sales	11	11	11	11
Service	13	13	13	13
Parking garage (sq.ft.)	55,750	53,705	69,910	27,550
Number of Employees				
Service	4	4	5	1
Summary				
Profess./Tech./Mgr./ Admin.	**156**	**133**	**206**	**3**
Clerical	**105**	**88**	**139**	**--**
Sales	**19**	**18**	**22**	**11**
Service/Maintenance	**34**	**31**	**36**	**14**
Totals	**314**	**270**	**403**	**28**
Construction Cost	8,500,000	7,319,000	10,894,000	5,870,000
Construction Period Jobs	**71**	**61**	**91**	**49**

SOURCE: Wagstaff and Brady, based on same assumptions used in preparing Table 9.

Table 35
HIGH DENSITY RESIDENTIAL DEVELOPMENT SCENARIOS

Scheme Number	Oxford House	1	2	3	4	5	6
Land Use	All R-4 Residential	All R-5 Residential	All R-5 Residential	All R-5 Residential	Mixed Use: R-5 & Commercial	Mixed Use: R-5 & Commercial	Mixed Use: R-5 & Commercial
Zone	R-4	R-5	C-2	C-2	C-2	C-2	C-2
Height (stories)	6	6	6	9	6	9	9
Res'l Coverage (%)	45	45	45	45	45	45	55
Site Size (sq.ft.)	16,680	20,750	20,750	20,750	20,750	20,750	20,750
Residential Component							
Total Units	**34**	**56**	**56**	**104**	**50**	**80**	**96**
Total Sq.Ft. (@ 788/unit[a])	26,792	44,128	44,128	81,952	39,400	63,040	75,648
Total Const. Cost (@ $149/s.f.[b])	3,992,008	6,575,072	6,575,072	12,210,848	5,870,600	9,392,960	11,271,552
Total Land Cost	578,000[c]	952,000[c]	1,200,000[d]	1,200,000	1,000,000	1,000,000	1,000,000
Total Finished Cost ($)	4,510,008	7,527,072	7,775,072	13,410,848	6,870,600	10,392,960	12,271,552
Total Required Return ($)[b]	5,484,009 to 5,941,010	9,032,486 to 9,785,194	9,330,086 to 10,107,594	16,093,017 to 17,434,102	8,244,720 to 8,931,780	12,471,552 to 13,510,848	14,725,862 to 15,953,018
Required Return per unit ($)[e] (Selling Price)	**161,294 to 174,735**	**161,294 to 174,735**	**166,609 to 180,493**	**154,740 to 167,635**	**164,894 to 178,636**	**155,894 to 168,886**	**153,394 to 166,177**
Commercial Component							
Total Sq.Ft.	--	--	--	--	12,050	12,050	12,050
Total Const. Cost (@ $105/s.f.)	--	--	--	--	1,265,250	1,265,250	1,265,250
Total Land Cost	--	--	--	--	200,000	200,000	200,000
Total Finished Cost	--	--	--	--	1,465,250	1,465,250	1,465,250
Total Required Return[e]	--	--	--	--	1,758,300 to 1,904,825	1,758,300 to 1,904,825	1,758,300 to 1,904,825
Combined Totals							
Const. Cost	3,992,008	6,575,072	6,575,072	12,210,848	7,135,850	10,658,210	12,536,802
Land Cost	578,000	952,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Finished Cost	4,570,008	7,527,072	7,775,072	13,410,848	8,335,850	11,858,210	13,736,802

SOURCE: Wagstaff and Brady, August 1985.

[a]Average unit size for comparable recent project was 788 s.f. (combination of 2-bedroom and 1-bedroom condominium units)
[b]Based on same comparable.
[c]R-5 land cost computed @ $17,000 per unit based on comparable recent project.
[d]Estimated current land price for Courtney site based on current Property Transfer Tax rolls.
[e]Required rate of return on a typical real estate project in order to attract investors conservatively assumed to be 20% to 30%.

The principal six-story, 50-unit, residential-commercial alternative tested throughout this alternatives analysis is included in the Table 35 as scheme **4.**

The table indicates that by increasing the height of the residential-commercial scheme from six to nine stories (scheme **5**), the unit yield could be increased to 80 units, and by increasing the horizontal profile from 45 percent (maximum allowable under R-5) to 55 percent, the nine-story yield could be increased to 96 units. The table also indicates that an all-residential scheme, i.e., without the ground-floor commercial, could yield 56 units at six stories (scheme **2**). If C-2 rather than R-5 building height maximums were applied (100 feet rather than six stories), a nine-story residential highrise could be constructed for a yield of 104 units (scheme **3**).

To understand the **cost implications** of these different approaches to residential use of the project site, Table 35 includes estimates of the **required selling price per unit** associated with each scheme. The table reflects the following basic assumptions and conditions:

- The cost characteristics of the current 34-unit, six-story highrise condominium project at Oxford and Hearst (the Oxford House) provide a comparable "base case";

- Unlike the Oxford House site, which is zoned R-4, the Courtney site was recently purchased at C-2 land prices which are substantially higher than R-5 land prices ($45 vs. $58 per square foot), and would result in a correspondingly higher per-unit land cost and required selling price; and

- The city's most intensive residential zoning district, R-5, which was intended to accommodate central area residential development, would be applied to any residential development at this Fulton/Durant location.

- The key consideration in reviewing the Table 35 figures is the required selling price per unit.

The following conclusions can be drawn from the Table 35 figures with regard to the **cost implications** of residential development on the Courtney site:

1. Residential highrise condominium units constructed on recently purchased C-2 land would normally require a per-unit selling price roughly $5,000 to $6,000 higher than comparable units constructed on recently purchased R-5 land, due to the difference in land purchase price.

2. A residential-commercial project constructed to C-2 height limits (nine stories) could offer units at selling prices ($9,000 to $10,000) lower than a project constructed to R-5 height limitations (six stories).

3. The addition of a ground-floor commercial component to a highrise residential project does not appear to have a significant effect on residential unit selling prices.

It was suggested in the Scoping Session for this EIR that perhaps a multi-use building could provide opportunities for "**internal subsidy**," i.e., commercial tenants could be charged relatively higher rents, and the added income from the higher rents could be used to offset the cost of the residential component.

In conventional real estate programs, however, the practice is to "charge what the market will bear" for all space and for all uses in a project; a project cannot charge still more for its commercial space than "what the market will bear." Given the existing zoning limitations on maximum building envelope, internal subsidy can only come from charging commercial tenants market-rate rents and, at the same time, charging residential tenants below-market-rate rents, and offsetting these residential rent reductions with some portion of the commercial rent income, at a loss to the project. On the other hand, "internal subsidy" may work if the commercial component was allowed as a "bonus" beyond the normal R-5 building envelope, i.e., as an additional story or stories, to increase the feasibility of below-market-rate home prices.

In Pleasant Hill, the "Two Worlds" condominium complex has pioneered the another innovative concept of common ownership by the project homeowners of all ground floor commercial space. This approach provides an innovative form of internal subsidy, although initially adding to the purchase price of the housing.

c. Other Differences in Economic Impacts. The three office-oriented alternatives would all be generally consistent with city Economic Development Plan goals to revitalize the local economy, promote a strong industrial base, increase private investment activity, retain existing businesses, attract new and viable businesses, build confidence within the business community, and thereby increase local employment.

The residential-oriented multi-use alternative would require denial of the proposed office-commercial project. Denial of a conforming, business-oriented use of a Downtown Commercial site recently purchased based upon its C-2 zoning would conflict with the city's Economic Development Plan goal to overcome perceptions in the business community of "regulatory vagueness and uncertainty" and a "negative business climate" in Berkeley.*

4. Differences in Circulation and Parking Impacts

a. Travel Demand Comparison

(1) Differences in Trip Generation. Trip generation characteristics for the proposed action and the three alternatives are compared in Table 36. Both the reduced intensity alternative and the multi-use alternative would produce fewer person trips than the proposed action. The reduced intensity alternative would result in 10 percent fewer person trips per day while the multi-use alternative would generate 35 percent fewer person trips. The increased intensity alternative would, of course, produce a higher number of person trips than the proposed action.

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* City of Berkeley Economic Development Plan, adopted November 1980; pp. 2, 6, 13, and 33–35.

Table 36
TRIP GENERATION COMPARISON

Alternatives	Daily Person Trips	PM Peak-Hour Person Trips				PM Peak-Hour Vehicle Trips
		Auto	Transit	Other	Total	
Proposed Action						
Office	1,615	220	105	20	345	195
Retail	865	65	30	5	100	60
Total	2,480	285	135	25	445	255
Reduced Intensity						
Office	1,370	185	90	20	295	160
Retail	865	65	30	5	100	60
Total	2,235	250	120	25	395	220
Maximum Intensity						
Office	2,130	295	140	25	460	260
Retail	865	65	30	5	100	60
Total	2,995	360	170	30	560	320
Mixed Use						
Residential	750	50	20	5	75	40
Retail	865	65	30	5	100	60
Total	1,615	115	50	10	175	100

SOURCE: DKS Associates, 1985.

Daily person trips would be 2,995 for the increased intensity alternative compared to 2,480 for the proposed action, an increase of 21 percent.

(2) Differences in Trip Modal Split. Table 37 compares the anticipated mode split and trip distribution characteristics between the proposed action and the three alternatives. The reduced intensity alternative would result in a 14 percent reduction in project vehicular trips added to the surrounding street system, and an 11 percent reduction in project additions to transit use. The increased intensity alternative would produce the greatest impact on the street system surrounding the project, as well as the greatest impact on transit services. Under this alternative vehicle trip additions would be 25 percent higher, and transit trip additions 31 percent higher, than the proposed action. The multi-use alternative would have a significantly smaller vehicular and transit trip increment, 60 percent and 63 percent lower respectively.

b. Traffic Impact Comparison

(1) Differences in Intersection Impacts. As shown in Table 38, there are only minor differences between the proposed action and the three alternatives in terms of their anticipated effects on intersection performance. This is true even for the multi-use alternative which has 220 fewer vehicle trips than the increased intensity alternative. Only the Oxford Street/University Avenue intersection experiences any changes in intersection performance, moving from a volume-capacity ratio of .77 (Level of Service C) for the proposed action to .78 (still C) for the increased intensity alternative and .75 (C) for the multi-use alternative. The reduced intensity alternative would result in no noticeable change in surrounding intersection performance.

The minimal differences between the alternatives is due primarily to the fact that: (1) signals at most of these intersections are set to allow adequate crossing time for pedestrians; and (2) the changes in project vehicular volumes in relationship to cumulative vehicular traffic were not critical to intersection performance.

(2) Differences in AC Transit Impacts. Differences in projected AC Transit peak period load factors among the project alternatives are summarized in Table 39. The alternatives would result in marginal differences from the proposed action in their effects on AC Transit load factors. Considering all of the routes serving downtown Berkeley, the reduced intensity and the multi-use alternative would maintain the same overall load factor, while the increased intensity alternative would increase the load factor by only .01. For the key routes serving the site--the 37, 43, and 51 routes--the load factor would vary by only .01. The results of this analysis are summarized in Table 39.

(3) Differences in BART Impacts. Table 40 indicates that the differences in impact on BART among the various project alternatives would also be negligible. Although two-thirds of transit riders from the development would be expected to use BART as opposed to AC Transit, the capacity and cumulative ridership of BART is such that these project increments can be absorbed without influencing loading factors.

Table 37
MODAL SPLIT AND DISTRIBUTION COMPARISON--PM PEAK HOUR

		Alternatives							
		Proposed Action		Reduced Intensity		Maximum Allowable Intensity		Mixed Use	
Mode	Destination	Veh. Trips (VT)	Pers. Trips (PT)	VT	PT	VT	PT	VT	PT
Auto	Berkeley	80	90	70	75	100	110	30	35
	Central Contra Costa	25	25	20	25	30	35	10	15
	South Bay	95	105	80	90	120	135	35	40
	North Bay	45	50	40	45	60	65	20	20
	S.F.	10	15	10	15	10	15	5	5
	Subtotals	255	285	220	250	320	360	100	115
AC Transit		--	45	--	40	--	55	--	15
BART		--	90	--	80	--	115	--	35
Other		--	25	--	25	--	30	--	10
Totals		255	445	220	395	320	560	100	175

SOURCE: DKS Associates, 1985, based upon: (1) "MTC 550 Zone Journey-to-Work Trip Tables," 1980; and (2) "MTC FCAST Travel Demand Models"; 1970.

Table 38
COMPARISON OF INTERSECTION PERFORMANCE, WEEKDAY PM PEAK HOUR--1990

Street Intersection	No Project	Proposed Action	Reduced Intensity	Maximum Allowable Intensity	Mixed Use
1. Shattuck/University	E (.96)	E (.97)	E (.97)	E (.97)	E (.97)
2. Oxford/University	C (.75)	C (.77)	C (.77)	C (.78)	C (.75)
3. Shattuck/Bancroft	C (.74)	C (.75)	C (.75)	C (.75)	C (.75)
4. Fulton/Bancroft	B (.64)	B (.64)	B (.64)	B (.64)	B (.64)
5. Shattuck/Durant	E (.90)	E (.90)	E (.90)	E (.90)	E (.90)
6. Fulton/Durant	B (.68)	B (.68)	B (.68)	B (.68)	B (.68)
7. Fulton/Dwight	A (.51)	A (.51)	A (.51)	A (.51)	A (.51)
8. Telegraph/Bancroft	B (.62)	B (.62)	B (.62)	B (.62)	B (.62)
9. Telegraph/Durant	D (.80)	D (.80)	D (.80)	D (.80)	D (.80)

SOURCE: DKS Associates, 1985.

Table 39
PROJECTED 1990 AC TRANSIT PEAK PERIOD LOAD FACTORS-- COMPARISON OF PROJECT ALTERNATIVES--OUTBOUND DIRECTION FROM BERKELEY CBD (4:00–6:00 PM)

Bus Stop	Routes	No Project[a]	Proposed Action[a]	Maximum Reduced Intensity	Allowable Intensity	Mixed Use
Shattuck/Dwight	33,37,43,F	.41	.42	.41	.42	.41
Warring/Parker	37U,65	.23	.23	.23	.23	.23
College/Parker	51	.95	.97	.97	.97	.96
Telegraph/Derby	40	.53	.54	.54	.54	.53
MLK/University	37,43,51	.90	.91	.91	.92	.90
Shattuck/Hearst	33,F	.46	.46	.46	.46	.46
MLK/Hearst	7,67	.32	.33	.33	.33	.32
MLK/Dwight	15	.36	.37	.37	.37	.37
Totals		.54	.55	.55	.56	.55

SOURCE: DKS Associates, 1985.
[a]From Table 19.

Table 40
PROJECTED 1990 BART LOAD FACTORS--COMPARISON OF PROJECT ALTERNATIVES--PM PEAK PERIOD/PEAK DIRECTION

Location	Routes/ Direction	No Project[a]	Proposed Action	Maximum Reduced Intensity	Allowable Intensity	Mixed Use
East of MacArthur Station	Daly City to Concord	1.06	1.06	1.06	1.06	1.06
North of Berkeley Station	Daly City to Richmond	.73	.73	.73	.73	.73
	Fremont to Richmond	.44	.44	.44	.44	.44
South of Lake Merritt Station	Daly City to Fremont	1.10	1.10	1.10	1.11	1.10
	Richmond to Fremont	.93	.94	.94	.94	.94
West of S.F. Civic Center	Daly City (all lines)	.66	.66	.66	.66	.66

SOURCE: DKS Associates, 1985.
[a] From Table 20.

c. Parking Impact Comparisons

(1) Differences in Transportation Service Fees. The Transportation Services Fee assessed by the city of Berkeley would vary between the alternatives based upon the size and type of construction involved. The highest fee would be paid under the increased intensity alternative, a lump sum payment of $249,000 or thirty annual payments of $24,900. The lowest fee would be paid under the multi-use alternative--$24,000 or thirty annual payments of $2,400. The total is much lower for the residential-oriented multi-use alternative because the city does not assess a transportation services fee on residential construction. The reduced intensity alternative would pay a fee of $167,200, or $16,720 for 30 years.

(2) Differences in Estimated Parking Demand. Table 41 compares anticipated parking demand characteristics of the various project alternatives with current city offstreet parking requirements. For each alternative, anticipated demands exceed current minimum zoning requirements. Assuming that under each alternative, the project would meet the minimum offstreet parking requirement, the difference or "deficit" between the city requirement and the anticipated demand would represent the offsite parking impact. The multi-use alternative would have the most significant impact, creating a deficit of 60 parking spaces. The reduced intensity alternative, on the other hand, would represent a slight improvement over the proposed action, although a deficit of six spaces would remain. The maximum intensity alternative would result in a deficit of 41 spaces, 6 more than the proposed action.

(3) Differences in Shared Parking Opportunities. The various office-oriented alternatives would present the opportunity to relieve local off-peak parking demand "surges" related to other nearby central area and university activities. This benefit would be due to the low weeknight and weekend demands for office parking (10 percent of daytime demand); i.e., at the times when extra parking may be needed for theaters, movies, Edwards Field or other university events, or shopping. The possibility for shared parking under the residential-oriented alternative is not as promising. Most parking provided for residential projects is usually assigned to each unit. Even if unassigned, balancing the needs of residents with the needs of daytime parkers would preclude the ability to "share" parking.

5. Differences in Municipal Service Impacts

a. Public Safety Services. The two variations on an office-commercial use--the reduced intensity and maximum intensity alternatives--could be expected to result in increases in the number of calls for police services and other police impacts potentials similar to those associated with the proposed project. The residential-oriented multi-use alternative could be expected to require additional police patrol and detective services in response to household and neighbor disputes, nuisance complaints, burglaries, and so on.

With respect to fire protection, the two office-commercial variations would result in similar increases in the demand for fire services. The increased-intensity alternative and the residential-oriented alternative would require higher fire flows than

Table 41
ESTIMATED PARKING DEMAND--COMPARISON OF PROJECT ALTERNATIVES

Alternative (Zoning)		Parking Demand	Onsite Supply (Min. Required)*	Onsite Deficit/Surplus
Proposed Action (C-2)				
Office	85,000 GSF	187	--	--
Retail	12,000 GSF	43	--	--
	Total	230	195	-35
Reduced Intensity (C-2)				
Office	71,600	158	--	--
Retail	12,000	43	--	--
	Total	201	168	-33
Increased Intensity (C-2)				
Office	112,000	247	--	--
Retail	12,000	43	--	--
	Total	290	249	-41
Mixed Use (C-2/R-5)				
Residential	50 du	85	44	
Retail	12,000	43	24	
	Total	128	68	-60

SOURCE: DKS Associates, 1985.
* Similar to the proposed action, calculations assume that each alternative would provide the minimum amount of offstreet parking required under the applicable zoning.

the proposed action and thus would be more likely to warrant improvements in the local water main on Durant Avenue.

The 50-unit residential alternative could be expected to create a greater increase in annual calls for fire protection services than the office schemes. The residential alternative would also be subject to more stringent sprinkling, fire alarm, smoke control, fire wall separation, fire flow (at all floors), rescue and evacuation requirements than would the office schemes. No new personnel or major equipment would be required as a result of the various schemes.

b. Water Supply. Based on the same assumption used in determining project water demands (20,410 gallons per day), the reduced intensity alternative would require 17,550 gallons per day and the maximum intensity alternative 26,195 gallons per day. The residential alternative would require less water, based on an assumed per capita use of 125 gallons per day (12,500 gallons per day for all 50 units). None of these added needs would have a noticeable impact on the EBMUD system.

c. Sewage Collection and Treatment. The various alternatives would contribute the following amounts of added wastewater flow to the local sewer system:

Project	14 gallons per minute
Reduced Intensity	12 gallons per minute
Maximum Intensity	18 gallons per minute
Residential-Commercial	9 gallons per minute

6. Differences in Fiscal Impacts

A comparison of anticipated fiscal impacts of the various project alternatives on the city of Berkeley is summarized in Tables 42 and 43. The added municipal expenditures anticipated with each alternative are itemized in Table 42. Additional municipal revenues anticipated from the various alternatives are itemized in Table 43. The specific approach and assumptions applied in estimating these expenditure and revenue impacts are described in Section IV.E.8.b and Appendix D of this report. The following conclusions can be drawn from the two tables:

(1) Ongoing City Costs. Differences in ongoing municipal expenditures anticipated with the various project alternatives would be as follows:

(a) Public Safety. As explained in Section IV.E.8, police and fire protection cost estimates are based upon cumulative department needs described earlier in this report for all eight new downtown buildings now under construction or approved. The figures in Table 42 for police and fire costs represent the portion of this cumulative public safety cost which can be apportioned to the various project alternatives on the basis of office floor area. The costs per square foot were also adjusted upward for the mixed-use (residential) alternative to account for the increased benefit per resident (as compared to benefit per employee).

Table 42
ESTIMATED IMPACTS ON ANNUAL CITY EXPENDITURES--ALTERNATIVES COMPARISON
1985 Dollars

Affected Expenditure	Total Citywide[a]	Added Costs--Project and Alternatives			
		Project: Office-Commercial	Reduced Office-Commercial	Increased Office-Commercial	Multi-Use: Residential Commercial
Public Safety					
Police	--	13,300	11,700	16,000	17,000
Fire Fighting and Rescue	--	12,400	10,900	15,200	15,900
Subtotal	22,221,017	25,700	22,600	31,200	32,900
Public Works					
Street-related*	469,900	1,700	1,400	2,100	120
Other	2,582,620	8,700	6,500	10,400	2,300
Subtotal	3,052,520	10,400	7,900	12,500	2,420
General Government	23,604,634	33,700	28,500	40,800	33,000
TOTALS	48,878,171	69,800	59,000	84,500	69,320

SOURCE: Wagstaff and Brady, October 1985.
* Includes General Fund expenditures only (excludes expenditures covered by State Gas Taxes, etc., which would not burden General Fund).
[a]From City of Berkeley Proposed Budget, 1985-1986, May 1985.

Table 43
ESTIMATED IMPACTS ON ANNUAL CITY REVENUES--ALTERNATIVES COMPARISON
1985 Dollars

Operating Fund Sources	No Project	Project: Office-Commercial	Reduced Office-Commercial	Increased Office - Commercial	Multi-Use: Residential-Commercial
Discretionary Sources					
Taxes					
Total Property Tax	11,795	129,707	113,060	162,999	94,067
Property Tax Share to Berkeley	5,072	55,774	48,616	70,090	40,449
Sales Tax					
Direct	468	20,545	19,210	23,295	12,050
Indirect	0	2,704	1,407	3,380	5,200
Utility Users Tax	0	4,365	3,764	5,603	542
Property Transfer Tax	0	16,320	14,263	20,435	13,459
Subtotals to Berkeley	5,540	99,708	87,260	122,803	71,700
Business License Fees	0	59,055	51,970	84,408	10,909
Fines and Penalties	0	1,250	1,050	1,650	2,700
State Subventions	0	722	483	954	365
Totals	5,540	160,735	140,763	209,815	85,674
Nondiscretionary Sources					
Offstreet Parking Fee	4,683	13,045	11,239	16,658	1,606
Benefit Assessment Districts*	-	7,808	6,734	10,022	3,726
Library Relief Tax	965	7,103	6,387	8,007	4,320
Totals	5,648	27,956	24,360	34,687	9,652
GRAND TOTALS	11,188	188,691	165,123	244,502	95,326

SOURCE: Wagstaff and Brady, August 1985.
* Streetlight and Parks/Landscaping Districts.

	Proposed Project	Reduced Intensity	Maximum Intensity	Residential-Commercial
Number of primary and secondary employees	500–600	400–500	600–700	30–35
Number of primary households	--	--	--	50
Number of secondary households	35–50	30–45	45–60	4

(b) Public Works. As explained in Section IV.E.8, public works costs were computed in two ways. Costs associated with streets and traffic were calculated based upon project-related traffic increases. Costs of non-street-related public works services benefitting project-related residents and employees were calculated on a per capita (employees or residents) basis, depending on the particular service.

(c) General Government. General government costs (auditor, city manager, MSA, etc.) could be expected to increase in rough proportion to the total of all other municipal service cost increases.

(d) Totals. Table 42 indicates that the reduced intensity office-commercial alternative would incur the lowest total for all General Fund related municipal service expenditures (approximately $59,000 per year), and the increased intensity office commercial alternative would incur the highest total annual cost (around $84,500). The annual total for the residential-commercial scheme would be close to the amount estimated for the proposed project (around $69,000).

(2) Ongoing Municipal Revenues. Additional public revenues anticipated from the various project alternatives are summarized in Table 43. Assumptions and approaches used in calculating these figures are described in Section IV.E.8.c of this report. The principal revenue differences are as follows:

Property taxes were computed based upon estimated land and improvement cost totals for the various alternatives. Land values were constant for all alternatives; improvement values varied by construction type ($87.50 per square foot for office-commercial,* $149 per square foot for residential**). Sales tax revenues were estimated for the office-commercial alternatives based upon assumptions described in Section IV.E.8.c regarding onsite sales activity (direct) and offsite retail expenditures of project businesses and employees (indirect). For the multi-use alternative, sales taxes were computed in a similar manner, except that offsite retail expenditures by the 100 project residents were assumed to be substantially higher

* The Courtney Building construction estimate amounts to approximately $87.50 per square foot.
** The Oxford House construction estimate amounts to approximately $149 per square foot.

than for the employee and business occupants of the office-oriented alternatives.* Utility users taxes were computed using the same average rate per square foot used in the waterfront planning program ($45/1,000 square feet for all uses). The property transfer tax figure assumed that ownership of the commercial, office, and residential portions of each alternative would change on an average of once every seven years. Business License Fees were computed based upon city rates for retail, office, and rental income. The total for the multi-use alternative assumes that all residential uses would be sold rather than rented, leaving revenues from the commercial level only. Fines, penalties, and state revenues (Cigarette Tax) were estimated on a per capita basis (employees and residents). The offstreet parking fee was computed for commercial parking spaces only. The Benefit Assessment District assessments were computed for street lighting and parks/landscaping as a combined rate of $.0805 per square foot of improvements for commercial and office space, and $.0517 per square foot for residential space. Finally, the Library Relief Tax was computed at the rate of $.0465 per square foot for all uses.

(3) Cost-Revenue Comparisons. In the initial years of full operation General Fund revenues would exceed costs by the following amounts:

Project office-commercial	**$ 90,940**
Reduced office-commercial	81,760
Increased office-commercial	125,320
Multi-Use: Residential-commercial	16,400

This fiscal comparison is indicative of one of the most important single effects of Proposition 13; i.e., the shift from residential towards commercial land uses as the principal source of city revenues. The city of Berkeley has taken further steps in this direction by increasing the business license tax rate in 1979, and by introducing the 10 percent parking tax.

Regarding the comparative longer-term fiscal impacts of the project alternatives, in the first years, property tax revenues would account for roughly 35 percent of total city revenues collected for the three office alternatives, and 42 percent for the multi-use scheme, a minor difference. Thus, a Proposition 13 related gradual decline in the annual surplus could be expected to occur over the long run at a slightly greater rate for the multi-use alternative than for the office schemes.

7. Differences in Noise Impacts

The differences in long-term noise impact associated with the project alternatives would be a direct function of their traffic generation characteristics. As indicated in Table 36 (Traffic Generation Comparison), the average daily traffic generation totals associated with the various alternatives would range from 2,995 trips (maximum intensity alternative) to 1,615 trips (residential-oriented scheme). Associated increases in traffic volumes on Durant Avenue, where the largest project-related increase in project traffic is anticipated, could be expected to raise average exte-

* Sales tax revenues from project residents were estimated, assuming local retail expenditures of $100 per week per resident.

rior noise levels along the route by 1 or 2 dB (Ldn), a barely perceptible or imperceptible change.

With respect to noise impacts of building operation, all of the schemes would have similar exhaust duct noise impacts on neighboring uses, since all would include underground parking.

Regarding the compatibility of the various alternatives with the projected noise environment at the project site, the average daytime exterior noise environment is expected to exceed 65 dBA (Ldn), as shown on Figure 39. This noise level exceeds what is "normally acceptable" for a residential use (see Table 25) and, thus, would warrant incorporation of special insulation measures in the project design. Occupants of units on the first two residential floors (levels 2 and 3) would experience noticeable traffic noise intrusion into rooms facing on Durant Avenue when windows were open.

8. Differences in Air Quality Impacts

Variations in total air pollutant emissions from motor vehicle trips generated by the project site would have no perceptible impact on regional or subregional air quality. Since all four alternatives would require a similar garage ventilation system, exhaust duct air quality impacts on adjacent apartment structures would also be similar.

Carbon monoxide concentrations along Durant and Fulton would be in compliance with state and federal standards. However, the residential-oriented use, which would presumably include operable windows along both street frontages, would be subject to adverse internal air quality and odor impacts and possible adverse effects on human health in units with street frontages on levels 2, 3, and 4.

F. REFERENCES

Black, J. Thomas, et al. Mixed-Use Development Projects in North America: Project Profiles; prepared by the Research Division of the Urban Land Institute; Washington, D.C., January 1983.

Procos, Dimitri. Mixed Land Use: From Revival to Innovation; Dowden, Hutchinson & Ross, Inc.; Pennsylvania, 1976.

Hanrahan, Michael J. "Economic Analysis for Mixed Use Study, Davis, California"; report financed in part by a USDHUD planning grant, Graduate School of Business Administration, U.C. Berkeley, June 1977.

Witherspoon, Robert E., et al. Mixed-Use Developments: New Ways of Land Use; ULI--The Urban Land Institute, Washington, D.C., 1976.

VI. CEQA-REQUIRED ASSESSMENT CONCLUSIONS

This chapter summarizes report findings in terms of the various assessment categories suggested by California Environmental Quality Act (CEQA) guidelines for EIR content. The section includes report findings with respect to "growth inducement," "unavoidable and irreversible" adverse impacts, "short-term vs. long-term environmental productivity," and effects found not to be significant.

A. GROWTH-INDUCING IMPACTS

The proposed office-commercial Courtney Building would add significantly to the growth of office development as the predominant land use in the downtown. The project, in combination with other local factors, including anticipated development of nearby university-owned sites, could be expected to substantially increase interest in and pressures for similar intensification of other underutilized properties to the north along Oxford.

The project's direct employment impact would be to increase employment citywide by as many as 314 jobs. The added business activity and income from these new jobs, in turn, could be expected to generate another 200 to 300 secondary jobs in business services, personal services, and retailing. New businesses would be an important source of these jobs. Thus, the total eventual employment impact potential of the project would be to generate an estimated 500 to 600 new jobs in Berkeley.

Based on current employee place-of-residence patterns in Berkeley, between 100 and 180 of these new project-related jobs would probably be held by Berkeley residents. It is also estimated that between 60 and 115 of these resident job holders would be new residents who, in turn, would translate into a demand for 50 to 95 additional new Berkeley housing units.

B. UNAVOIDABLE AND IRREVERSIBLE ADVERSE IMPACTS

If the proposed project were approved subject to implementation of all impact mitigation measures recommended in this EIR, the following adverse impacts would remain unavoidable and, in some cases, irreversible:

1. Land Use and Urban Design Impacts. Adverse land use conflicts between the proposed large-scale C-2 office-commercial use and the adjacent small-scale photo studio and 5-unit apartment building on Durant could be only partially reduced by the mitigation measures recommended in this report. The unavoidable adverse effects would include major building scale incongruities, view blockages, and shadow impacts.

2. Population and Housing. The project-related local housing demand increase (an additional need for 50 to 95 housing units), in combination with similar housing demand increases associated with other cumulative employment growth in the sub-region, could be expected to exacerbate current housing availability and affordability problems in Berkeley. Also, construction of the proposed office-commercial project would preclude use of the C-2 site for housing (R-5 development is allowable in the C-2 zone, and at 6 stories could yield as many as 50 one- and two-bedroom units).

3. Circulation and Parking. The project would result in relatively modest increases in traffic on streets and intersections serving the project. The project would also contribute to cumulative traffic increases at regional access points to the city. The most noticeable cumulative impact would be on the already constrained Ashby Avenue corridor connecting I-80 and the downtown where a total 1985–1990 traffic increase of 14 percent is anticipated (0.4 percent due to the project alone).

The project would result in a net loss of 70 downtown parking spaces.

During the project construction period, one traffic lane on Durant may be blocked by construction activity.

4. Noise. Project traffic generation would contribute to local street noise along sensitive nearby residential corridors including Fulton Street south of the site and Durant Avenue east of the site. These noise increases are not expected to be noticeable, however. Project construction period noise levels could, on the other hand, represent an annoyance and nuisance for nearby noise-sensitive land uses.

5. Air Quality. The project would also contribute (primarily from mobile sources) to local and regional air pollutant levels, although the project-related additions would not be high enough to cause a measurable degradation in regional air quality, or any local exceedance of state or federal standards.

The project driveway location could result in localized air quality impacts on the adjacent photo studio and 5-unit apartment building on Durant Avenue, similar to the impacts currently experienced along other local residential streets and intersections in Berkeley.

Project construction could also be expected to create localized, temporary increases in air pollutant emissions from construction equipment and processes.

C. SHORT-TERM VS. LONG-TERM ENVIRONMENTAL PRODUCTIVITY

In keeping with California Environmental Quality Act (CEQA) guidelines for EIR content, this section discusses the possibility of any cumulative long-term impacts of the project which would adversely affect the environment. Special consideration has been given to any impacts of the short-term use of the site (the proposed office-commercial project) which might narrow the range of long-term beneficial uses of the environment.

If the project is approved subject to the mitigation measures recommended in this report, the principal long-term impacts of the project on environmental productivity would include increases in air pollution and the demand for water and non-renewable energy sources for the long-term operation of the building. Project construction would also consume resources including building materials, power, and water.

The project is believed by the applicant to be justified now, rather than reserving the site in its vacant state for some future alternative use, in light of current unmet demands for office and commercial space in central Berkeley.

D. EFFECTS FOUND NOT TO BE SIGNIFICANT

The City of Berkeley Zoning Division, in completing its Initial Study of the project, determined that a number of possible environmental effects would be insignificant or could adequately be addressed by city staff through their normal development review procedures with no need for further environmental impact analysis. Beyond the issues addressed as the focus of this report, it has been determined by the city that the project would not have significant adverse effects on any other environmental, economic, or social factors. The city's completed Initial Study checklist and related comments are included in Appendix A of this report.

VII. ORGANIZATIONS AND PERSONS CONTACTED

CITY OF BERKELEY

Gil Kelley, Acting Zoning Administrator, Zoning Division
Ruth Grimes, Senior Planner, Planning Department
David Aoki, Real Property Agent
Louis Arnold, Refuse Superintendent
Eve Bach, Deputy City Manager
A. S. Benjamin, Officer, Crime Prevention, Berkeley Police Department
John Bonwell, Associate Civil Engineer, Department of Public Works
Officer Brock, Deputy Fire Chief
Chuck DeLeuw, Acting Traffic Engineer
Carol Duron, Planning Division
Robert Fleisch, Acting Director of Finance
Rayford Hiatt, Fire Marshall
Norma Hennessy, Planning Department
John Hornsby, City Compliance Officer
Phil Kamlarz, Assistant to the City Manager for Budget
Herb Lotter, Senior Civil Engineer, Department of Public Works
Neil Mayer, Assistant to the City Manager for Economic Development
William Montgomery, Parks/Marina
Ronald Nelson, Chief, Berkeley Police Department
V. C. Porter, Assistant City Manager for the Department of Public Safety and Fire Chief
Patrick Phelps, Inspector, Crime Prevention, Berkeley Police Department
Jean Roggenkam, Planner, Bay Area Air Quality Management District
Lester Soo, Officer, Crime Prevention, Berkeley Police Department
Silvia Toth, Transportation Planner

UNIVERSITY OF CALIFORNIA

William Liskamm, Director, Campus Planning Office
Dorothy Walker, Associate Director, Campus Planning Office

DOWNTOWN PLAN SUBCOMMITTEE OF THE PLANNING COMMISSION

Eric Parfrey

APPLICANT

William Courtney
Mark Trucker
Susan Smart, Realtor

ARCHITECT

Jeffery Hazard, Project Architect, Kaplan/McLaughlin/Diaz

OTHERS

Alan Gatzke, Associate, ROMA Planning and Urban Design
Kurt Ladensack, Supervisor of Industrial Discharge Section, East Bay Municipal Utility District
William McGowan, Jr., Associate Civil Engineer, East Bay Municipal Utility District
Jill Miller, Marketing Representative, Berkeley Area, Pacific Gas & Electric Company
Ben Morita, Deputy Auditor, Alameda County Auditor's Office
Dennis Stone, Manager, Resource Conservation Division, California Solid Waste Management Board
Marie Valmores, Junior Civil Engineer, East Bay Municipal Utility District
Bill Walsh, Marketing Agent, Coldwell Banker, Oakland

VIII. APPENDICES

A. INITIAL STUDY
B. SUPPLEMENTAL TRAFFIC DATA
C. JOBS-HOUSING IMPACT COMPUTATIONS
D. SUPPLEMENTAL FISCAL DATA
E. EIR CONSULTANT TEAM

ATTACHMENT "A"

CITY OF BERKELEY

ENVIRONMENTAL INITIAL STUDY

(To be completed by Lead Agency)

2308-18 FULTON ST.
6-STORY OFFICE STRUCTURE
11-9-84

Impact Rating

1 - No significant impact
*2 - Potential impact, but not substantial
*3 - Potential significant impact
*4 - Significant impact

*Impact described on the attached sheet

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1. Earth - Will the proposal result in:
   a. Unstable earth conditions or in changes in geologic substructures? 1
   b. Disruptions, displacements, compaction or overcovering of the soil? 1
   c. Change in topography or ground surface relief features? 1
   d. The destruction, covering or modification of any unique geologic or physical features? 1
   e. Any increase in wind or water erosion of soils, either on or off the site? 1
   f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake? 1
   g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure or similar hazards? 1

2. Air - Will the proposal result in:
   a. Substantial air emissions or deterioration of ambient air quality? 3
   b. The creation of objectionable odors? 1
   c. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally? 1

3. Water - Will the proposal result in:
   a. Changes in currents, or the course or direction of water movements, in either marine or fresh waters? 1
   b. Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff? 1
   c. Alterations to the course or flow of flood waters? 1
   d. Change in the amount of surface water in any water body? 1
   e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity? 1
   f. Alteration of the direction or rate of flow of ground waters? 1
   g. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations? 1
   h. Substantial reduction in the amount of water otherwise available for public water supplies? 1
   i. Exposure of people or property to water related hazards such as flooding or tidal waves? 1

4. Plant Life - Will the proposal result in:
   a. Change in the diversity of species, or number of any species of plant? 1
   b. Reduction of the numbers of any unique, rare or endangered species of plants? 1
   c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species? 1
   d. Reduction in acreage of any agricultural crop? 1

5. Animal Life - Will the proposal result in:
   a. Change in the diversity of species, or numbers of any species of animals? 1
   b. Reduction of the numbers of any unique, rare or endangered species of animals? 1
   c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals? 1
   d. Deterioration to existing fish or wildlife habitat? 1

6. Noise - Will the proposal result in:
   a. Increases in existing noise levels? 3
   b. Exposure of people to severe noise levels? 3

7. Light and Glare - Will the proposal produce new light or glare? 3

8. Land Use - Will the proposal result in a substantial alteration of the present or planned land use of an area? 3

9. Natural Resources - Will the proposal result in:
   a. Increase in the rate of use of any natural resources? 1
   b. Substantial depletion of any non-renewable natural resource? 1

10. Risk of Upset - Does the proposal involve a risk of an explosion or the release of hazardous substances (including oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions? 1

11. Population - Will the proposal alter the location, distribution, density, or growth rate of the human population of an area? 2

12. Housing - Will the proposal affect existing housing or housing demand? 3

13. Transportation/Circulation - Will the proposal result in:
   a. Generation of substantial additional vehicular movement? 3
   b. Effects on existing parking facilities, or demand for new parking? 3
   c. Substantial impact upon existing transportation systems? 3
   d. Alterations to present patterns of circulation or movement of people and/or goods? 3
   e. Alterations to waterborne, rail or air traffic? 1

f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians? 3

14. Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:

a. Fire protection? 2

b. Police protection? 2

c. Schools? 1

d. Parks or other recreational facilities? 1

e. Maintenance of public facilities, including roads? 1

f. Other governmental services? 1

15. Energy. Will the proposal result in:

a. Use of substantial amounts of fuel or energy? 2

b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy? 1

16. Utilities. Will the proposal result in a need for new systems, or substantial alterations to the following utilities:

a. Power or natural gas? 1

b. Communications systems? 1

c. Water? 1

d. Sewer or septic tanks? 3

e. Storm water drainage? 3

f. Solid waste and disposal? 1

17. Human Health. Will the proposal result in:

a. Creation of any health hazard or potential health hazard (excluding mental health)? 1

b. Exposure of people to potential health hazards? 1

18. Aesthetics. Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view? 3

19. Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities? 1

20. Archeological/Historical. Will the proposal result in an alteration of a significant archeological or historical site, structure, object or building? 1

21. Mandatory Findings of Significance.

(a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? No

b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.) No

c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.) Yes

d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? Yes

III. DISCUSSION OF ENVIRONMENTAL EVALUATION

2A. CONSTRUCTION PERIOD DUST MAY IMPACT ADJACENT RESIDENCES. PROJECT WOULD ADD INCREMENTALLY TO LOCAL AUTO EMISSIONS.

6A,B. INCREASED TRAFFIC AND CONSTRUCTION ACTIVITIES WILL GENERATE ADDITIONAL NOISE FOR NEARBY RESIDENTS.

7. PROJECT MAY RESULT IN INCREASED NIGHTTIME GLARE FOR ADJACENT APARTMENT HOUSES.

8. PROJECT CONFORMS TO ZONING AND IS SIMILAR IN SCALE TO SOME NEARBY USES BUT HEIGHT AND BULK SHOULD BE ANALYSED IN TERMS OF ITS RELATION TO OTHER SURROUNDING USES AND PERTINENT PLANS.

11, 12. PROJECT MAY CREATE A SUBSTANTIAL NUMBER OF NEW JOBS AND INCREASE LOCAL DEMAND FOR HOUSING.

13A-F. PROJECT WILL INCREASE AREA TRAFFIC AND POTENTIAL TRAFFIC HAZARDS, WILL ELIMINATE EXISTING PARKING AND WILL POSSIBLY CREATE A DEMAND FOR NEW PARKING BEYOND THAT PROPOSED. PROJECT MAY ALSO HAVE AN ADVERSE PEAK-HOUR EFFECT ON TRANSIT SYSTEM. CUMULATIVE TRAFFIC IMPACTS MAY BE PARTICULARLY SIGNIFICANT.

15. ENERGY CONSERVATION MEASURES COULD REDUCE THE HEATING DEMAND FOR BUILDING.

16D,E. THE CUMULATIVE DEMAND FOR SEWER/ STORM DRAINAAGE SERVICE IN THE CENTRAL BUSINESS DISTRICT MAY BE SUBSTANTIAL.

18. THE PROPOSED STRUCTURE SHOULD RELATE TO THE DRAFT DESIGN REVIEW GUIDELINES AND ANY RELEVENT DOWNTOWN DEVELOPMENT GUIDELINES.

IV. DETERMINATION
(To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION WILL BE PREPARED.

☒ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

ate 2-27-85 Peter M. Brady
(Signature)

PETER BRADY, ZONING OFFICER
For

APPENDIX B

TRAFFIC AND TRANSPORTATION

1. Travel Demand Analysis

Future traffic and transit volumes were estimated for the local street system's peak-hour period (4:30-5:30 PM), which is also the projected peak hour for the proposed building. An horizon year of 1990 was selected for this study.

A four-step process was followed to project traffic generated by future development:

- Trip Generation - Estimation of the number of trips originating from or destined to the proposed site.
- Mode Split - Estimation of the share of trips taken by auto, transit or other modes.
- Trip Distribution - Determination of the directional orientation of trips generated by the proposed project.
- Trip Assignment - Assignment of trips to specific study-area corridors.

Trip Generation. The person and vehicle trip rates used in this study are presented in Tables A-1 and A-2. They have been obtained from numerous recent studies of traffic generation for general and existing developments.

PERSON TRIP GENERATION RATES

Development Type	Units	Daily Person Trip Generation Rate	PM Peak Hour%
Office	1,000 GSF	19	21.5%
Retail/Commercial	1,000 GSF[1]	72	12.0%

Table A-2
VEHICLE TRIP GENERATION RATES
Two-Way Vehicle Trips

Development Type	Units	Generation Rate Daily	Generation Rate Peak Hour	Peak Hour In/Out Split
Office	1,000 GSF[1]	5.2	1.1	85%/15%
Retail/Commercial	1,000 GSF	20.2	2.4	60%/40%

---

1 GSF = Gross Square Feet Floor Area.

SOURCES:

- "Trip Generation," Third Edition, Institute of Transportation Engineers, 1982.
- "Progress Reports on Trip Ends Generation Research Counts," Studies No. 126, 155, 156, 194, 198-200, 250-253, State of California Department of Transportation, District 4, July 1975 and July 1976.
- Addendum No. 1 to the Environmental Impact Report for the Golden Bear Project: Supplemental Traffic Analysis: Supplemental Traffic Analysis of the Proposed Golden Bear Project.

Mode Split. To accurately analyze future traffic and transit conditions, mode split estimates were made for Courtney-Berkeley Office Building PM peak hour trips. Peak period mode splits for office trips in 1990 are estimated to be as follows: 30 percent via transit (20 percent on BART, 10 percent on AC Transit), 56 percent automobile drivers, 8 percent auto passengers, and 6 percent by other modes (bicycling, walking, etc.).

Trip Distribution. The trip distribution of the Courtney-Berkeley Office Building is similar to one used in the Golden Bear EIR. It is based on two primary sources: the Metropolitan Transportation Commission (MTC) 550 zone journey to work trip tables[1] and the Berkeley Trip report.[2] Figure A-1 summarizes the trip distribution for the Courtney-Berkeley Office Building.

Trip Assignment. For traffic impact analysis, vehicle trips to and from the proposed development were assigned to the existing street network within the study area based on the aforementioned trip distribution. Primary vehicle access routes for the project were University Avenue, Shattuck Avenue, Oxford/Fulton Street, Bancroft Way, Durant Avenue and Telegraph Avenue.

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1 "MTC 550 Zone Journey to Work Trip Tables," 1980.

2 The Berkeley Trip Project, Final Report, City of Berkeley, 1982.

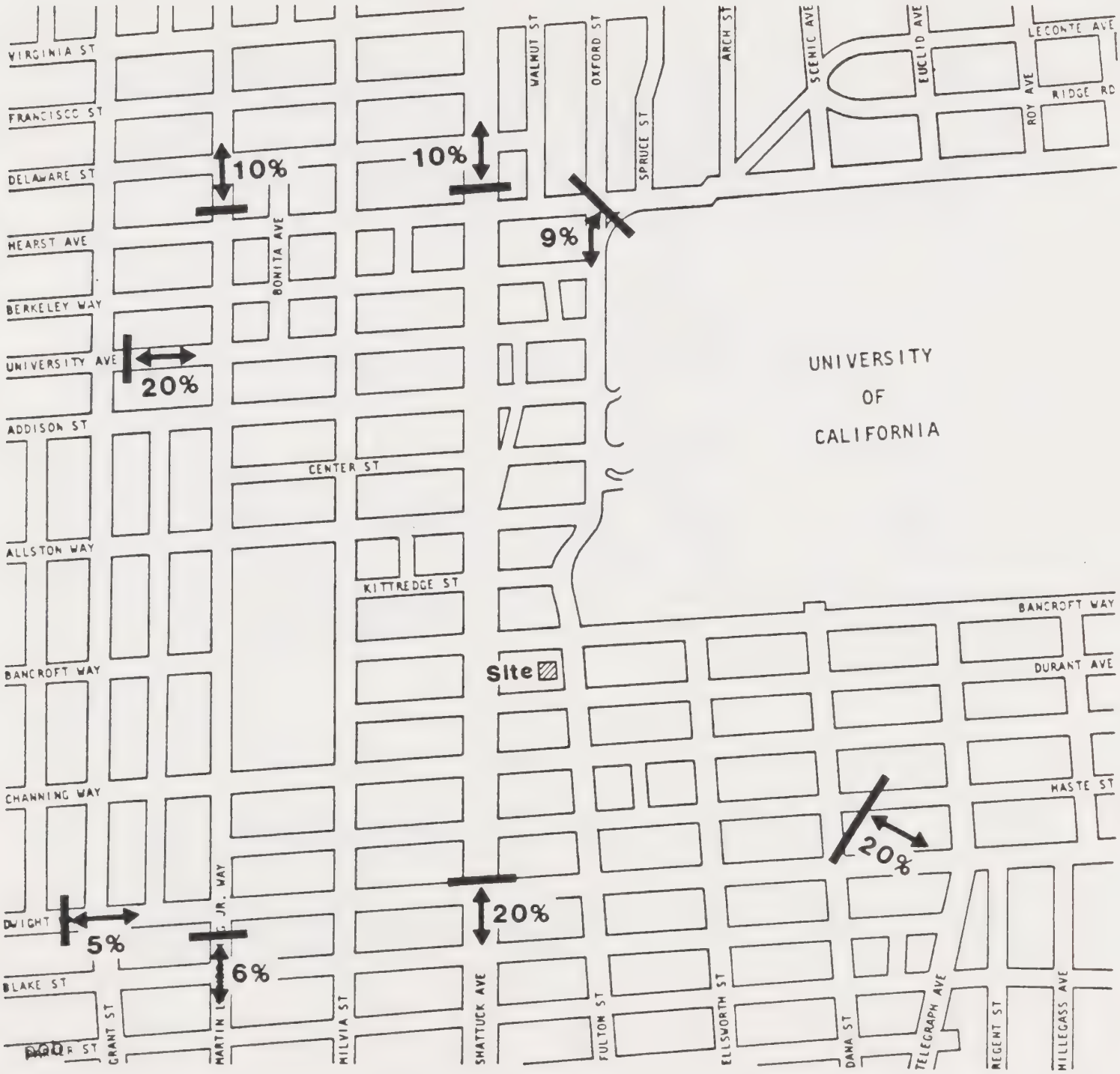

Figure A-1
TRIP DISTRIBUTION
COURTNEY BERKELEY OFFICE BUILDING

2. Traffic Analysis

Analyses of traffic flows are useful in attempting to reach an understanding of the general nature of traffic in an area, but by themselves indicate neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of "level-of-service" has been developed to correlate numerical traffic-volume data to subjective descriptions of traffic performance at intersections. Intersections are the controlling "bottlenecks" of traffic flow, and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinities. Table A-4 presents the "level-of-service" categories "A" through "F" considered in this analysis and indicates the qualitative definition of each category and the corresponding volume-to-capacity ratios. Level-of-service "D" is the generally accepted standard for planning of transportation facilities. Levels-of-service "A," "B," and "C" are considered very acceptable, while levels "E" and "F" are progressively less so.

To efficiently analyze the 9 study intersections, the TRACS[1] computer program was employed. TRACS basically takes existing traffic plus projected traffic from any number of developments and determines volume-to-capacity ratios and levels of service at street intersections based upon critical movement analysis.[2] Table 9 summarizes the outputs from TRACS showing 1984 existing traffic, and 1990 analysis conditions. Trip contributions calculated for the Courtney-Berkeley Office Building are incuded in this analysis.

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1 "TRACS" is Traffic Analysis Computer Software developed by DKS Associates.

2 "Interim Materials on Highway Capacity," Transportation Research Board, Circular No. 212, Washington D.C., January 1980.

Appendix C: Jobs-Housing Impact Computations

NEW BERKELEY JOB-HOLDERS AND NEW BERKELEY HOUSEHOLDS

A. New jobs created by project (primary and secondary)	= 500 to 600 jobs
B. Number of new job holders residing in Berkeley (20 to 30 percent -- from Polaris report)	= 100 to 180 job-holders
C. Portion of these (B) who are existing city residents currently underemployed, unemployed, or entering workforce for the first time (assumption)	= at least 15%
D. Portion of these (B) who are existing city residents shifting from other jobs in the city (assumption)	= at least 15%
and portion of these vacated jobs taken by new residents (assumption)	= around half = 8 to 14 job-holders
E. Portion of these (B) who are city residents shifting from other jobs outside the city (assumption)	= at least 15%
F. Portion of these (B) who are new Berkeley residents (remainder)	= around 55% = 55 to 99 job-holders
G. Total new job-holders who are new Berkeley residents (D + F)	= 63 to 113; say 60 to 115
H. Total new households occupied by holders of new jobs created by the project, assuming 1.2 employees per typical Berkeley household.*	= 53 to 94 new households; **say 50 to 95**

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* From 1980, 1985, and 1990 ABAG figures for total number of households and total employed residents, Berkeley, ABAG Projections '85, July 1985, pp. 65 and 72.

Appendix D-1

PROJECT-RELATED EXPENDITURES FOR PUBLIC SAFETY

Police

Additional uniformed officers needed for all 8 downtown buildings now under construction or planned, including the project (Source: Soo, BPD, 1985) =	1 officer
Cost per year for each uniformed officer, including direct costs, plus other related public safety costs covered by the General Fund, including the Training and Support budget, the Reserves budget, the Services budget, the Communications budget, and the Administrative Services budget; plus personnel benefits and miscellaneous expenses (Source: E. Bach, City Manager's Office, 1985) =	$92,297 per officer
Total square footage of building space in all 8 new downtown office buildings under construction or planned, including the proposed project (from EIR Table 1) =	675,496 sq.ft.
Total square footage of building space in project =	97,000 sq.ft.
Project portion of cost per year for the new uniformed officer = (97,000/675,496) x 92,297 =	**$13,254**

Fire

Additional fire fighters needed to adequately serve all 8 downtown buildings now under construction or planned, including the project -- assumed to be slightly less than one fire fighter, based on BFD staff comments and the current size of the BFD (115 full-time employees), vs. the size of the BPD (117 full-time employees) =	1 fire fighter
Cost per year per fire fighter, including direct costs, plus other related public safety costs covered by the General Fund, including the Training budget, Communications budget, and Administrative Services budget; plus personnel benefits and miscellaneous expenses (Source: E. Bach, City Manager's Office, 1985) =	$86,100
Total square footage of building space, 8 new buildings =	675,496 sq.ft.

Appendix D-1 (continued)

Project portion of cost per year for new fire fighter = (97,000/675,496) x $86,100 =	**$12,363**
Cost of additional project-related special equipment =	0*

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* It is assumed that applicant will provide funds for the special equipment and other project-specific needs identified in the EIR, such as special breathing aparatus, new hydrants, etc.

Appendix D-2

PUBLIC WORKS EXPENDITURES FROM CITY GENERAL FUND

Project public works costs are divided in this analysis into those which are road-related, and those which are not road-related.

Expenditures NOT Road-Related. Costs which are not road-related are analyzed in terms of who directly benefits from these services, i.e., Berkeley residents and employees.

In terms of degree of benefit from city public works services financed by the General Fund (administration, engineering, communications, storm drain maintenance, routine building maintenance, and capital improvements), each resident would receive a greater benefit per year than each employee, simply because of comparative active time spent in the city. This analysis assumes more conservatively that each resident receives roughly 1.5 times the benefit of each local employee for every General Fund dollar spent on non-road-related public works services:

Total Berkeley residents, 1985 = 106,600 (ABAG) x 1.5 =	159,900 =	72%
Total Berkeley employees, 1985 = 60,700 (ABAG)	60,700 =	28%
	220,600 =	100%

Thus, of the $2,582,620 budgeted for non-road-related public works services in the 1985-96 (see Table D-2-A), Berkeley employees receive around 28% or $723,134 of benefit, or $11.91/employee. The 500 to 600 primary and secondary project-related new employees could be expected to directly increase city non-street-related public works costs by between $6,000 and $7,000 per year, plus another $1,800 to 2,600 per year due to related household growth (35 to 50 new homes x 3 persons/household = 105 to 150 additional people x $17.44 per resident = $1,800 to $2,600), for a total of $7,800 to $9,600 per year, or **$8,700.**

Road-Related Expenditures. Costs associated with streets and traffic have been calculated on the next page based on estimates of added vehicular trips from the project in proportion to total vehicular trips generated by all existing city development. Traffic-related city development can be expressed in terms of households and employees, the normal basis for computing traffic generation. Per-household and per-employee traffic generation rates take into account direct traffic generation, as well as secondary traffic factors such as shipments and deliveries, trips by clients, patrons, visitors, and so on. However, using households and employees as a basis for computing citywide traffic generation probably does not adequately take into account the full contribution of the university to local traffic. Thus the approach should be considered conservative (i.e., the actual relative impact of the project may be slightly lower than the figure derived using the households-jobs traffic-generation approach).

Appendix D-2 (continued)

Citywide Vehicular Traffic Generation (Gross Estimate), 1985

	Trips/Day
Households: 45,240 households (ABAG) x 8 trips per average household =	361,920
Employees: 60,700 total jobs (ABAG)	
Retail employment: 9,730 jobs (ABAG) x 14 trips per employee (Caltrans) =	136,220
Other employment: 50,970 jobs x 4 trips per employee (Caltrans) =	203,880
Total vehicular trips per average weekday, citywide:	702,020
Total Road-Related Public Works Costs (from Table D-1):	$ 469,900

Cost in dollars per non-retail employee, 1985:
(203,880/702,020) x 469,900 = $136,468/50,970 jobs =
$2.68 per non-retail employee

Cost in dollars per retail employee, 1985:
(136,220/702,020) x 496,900 = $13,563/9,730 jobs =
$1.39 per retail employee

Cost in dollars per household:
(361,920/702,020) x 469,900 = $242,253/45,240 households =
$5.35 per household

Project Costs:

Related to primary jobs (314 total)		
Commercial: 27 jobs (from EIR) x $1.39 =		$ 37.53
Non-commercial: 287 jobs (from EIR) x $2.68 =		769.16
Related to secondary jobs		
Total primary and secondary jobs: 500-600 (from EIR) minus 314 =	around 260 jobs	
Commercial: say 20% or 52 jobs x $1.39 =		72.28
Non-commercial: say 80% or 208 jobs x $2.68 =		557.44
		629.72
Related to new project-related households		
35 to 50 new Berkeley homes (from EIR), or say 40 x $5.35 =		214.00
		$1,650.41

The total is small because it excludes those street maintenance and signalization costs which would be funded by Gas Tax revenues.

Appendix D-2 (continued)

Table D-2-A
GENERAL FUND EXPENDITURES BUDGETED FOR PUBLIC WORKS, 1985-86
Source: 1985-86 City of Berkeley Proposed Budget

	General Fund Expenditure	Budget Reference	Estimated Portion Road-Related
Administration	$ 177,773	p. 256, 228	$ 53,300 (50%)
Engineering	282,388	p. 256, 229	85,000 (30%)
Traffic Engineering	130,035	p. 257, 230	130,035 (100%)
Communication	292,295	p. 257, 232	146,000 (50%)
Storm Drain Maintenance	220,171	p. 257, 238	--
Traffic Maintenance	10,000	p. 258, 239	10,000
Routine Building Maintenance	911,188	p. 259, 243	45,600 (50%)
Maintenance of Park Structures	126,170	p. 259, 245	--
Maintenance of Landscaped Areas	2,500	p. 259, 249	--
Capital Improvements	900,000	p. 260	-- (excludes roads)
Totals	$3,052,520	p.40	$ 469,900
Road Related	469,900		
Other	2,582,620		

Non-general fund financed public works activities include the following:

	Reserve Source	Budget Reference
Street & Signal Maintenance	Gas Tax (100%)	p. 235-236
Sanitary Sewer Maintenance	Sewer Fund (100%)	p. 277
Storm Drain Maintenance	Gas Tax (23%)	p. 238
Traffic Signs & Markings	Gas Tax (68%)	p. 239
Refuse Collection	Charges (100%)	p. 241
Parks-Landscaping	Special Assess. (100%)	p. 244
Equipment Replacement	Equipment Replacement Fund	

Appendix D-2 (continued)

Table D-2-B
RELEVANT GENERAL FUND EXPENDITURES BUDGETED
FOR GENERAL GOVERNMENT
Source: 1985-86 City of Berkeley Proposed Budget

	General Fund Expenditure	Budget Page Reference
Auditor's Department	$ 541,366	p. 49
City Manager's Department	999,767	p. 55
Health & Human Services Department*	(5,108,771*)	p. 63
Legal Department	600,476	p. 103
Management Services Agency	4,380,826	p. 119
City Clerk	464,223	p. 127
Mayor & Council	444,764	p. 157
Planning & Community Development	1,864,120	p. 165
Employee Benefits & Misc. Expenses	14,309,092	p. 261
TOTAL	$23,604,634	

* Not included in the $23,604,364 total. HHSD services are provided primarily to Berkeley residents in need and would not be significantly affected by office development.

Appendix D-3

GENERAL FUND EXPENDITURES FOR GENERAL GOVERNMENT

General government costs can be computed in proportion to the total cost increase for all other General Fund related city services as follows:

	Citywide	Project Increment	
Public Safety	22,221,017	25,700	(from Table E-1)
Public Works	3,052,520	10,400	(from Table E-1)
Subtotal	25,273,537	36,100	

$$\frac{36,100}{25,273,537} = 0.14284$$

General Government = 23,604,634 (from Table D-2-B)
× 0.14284 = 33,716

Appendix E

COURTNEY BUILDING EIR CONSULTANT TEAM

Wagstaff and Brady (Prime Consultant)

John Wagstaff, Partner-in-Charge
Sheila Brady
Steven Hammond
Maria Guttentag
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DKS Associates (Transportation and Parking)

William Dietrich, Principal-in-Charge
James Dougans, Transportation Planner
Rebecca Kolstrand, Transportation Planner

Baseline Environmental Consultants (Municipal Services, Noise, and Air Quality)

Joyce Hsiao, Partner-in-Charge

Charles M. Salter Associates (Noise Monitoring)

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